ALEXANDER OF APHRODISIAS

On Aristotle's *Metaphysics 5*

Translated by
William E. Dooley, S.J.

Alexander of Aphrodisias:
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Book 5 of the *Metaphysics* is a key to Aristotle's philosophy, for it contains definitions of important terms used throughout his works. Now available for the first time in English translation, Alexander of Aphrodisias' commentary on Book 5 will be invaluable for those seeking a deeper understanding of Aristotelian thought.

Book 5 presents unique problems of interpretation, which Alexander acknowledges. A collection of definitions without apparent internal coherence, it was not originally included in the *Metaphysics*, but was incorporated by editors at the middle or end of the third century B.C. Alexander provides a detailed commentary on the thirty terms analyzed in Book 5, weighing alternative interpretations, defending Peripatetic views against actual and possible criticisms, and attempting to integrate the contents of Book 5 into the context of the *Metaphysics* as a whole.

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Contents

Introduction

Book 5 (Delta) of the *Metaphysics* is extremely important because it consists of definitions of the main uses of key terms of Aristotle's philosophy. Aristotle is a systematic writer who often cross-refers to the definitions of terms given elsewhere, and this is what gives the book its importance.

But the book has been transmitted to us, and must be read, as part of a unitary treatise, '*the Metaphysics*', and from this point of view it presents two problems: that of its relation to the other books of the *Metaphysics*, and that of its own internal unity. Delta did not become part of the *Metaphysics* until the middle or end of the third century BC. In format it differs completely from the other books: it is not a continuous *logos*, but consists of 30 independent treatises or chapters, each of which, with the exception of chapter 27 (*kolobos*, mutilated), examines the various meanings that can be assigned to such common terms as *arkhê* (beginning), *aition* (cause), *stoikheion* (element), etc. Delta has consequently come to be known as Aristotle's 'philosophical lexicon', a designation that unfortunately gives a false impression of the contents and purposes of the book (see n. 3 to the Translation). And since Delta does not seem to be a natural sequel to the books that precede it, nor an introduction to those that follow, one can easily conjecture that it was originally a separate treatise which the editors of Aristotle's works subsequently inserted, however inappropriately, into the course of lectures that came to be entitled '*the Metaphysics*'.[1] In the opinion of many scholars, this hypothesis is confirmed by the fact that the catalogue of Aristotle's works preserved by Diogenes Laertius, which does not mention the *Metaphysics*, includes this entry: 'One [book] on things that are expressed in various ways, or by reference to an addition.'[2] Thus Moraux says, '[This title] (D.L. 36) is

1 Jaeger concluded that the independent work which we know as Book Delta could not have been incorporated into the *Metaphysics* before the time of Hermippus, thus toward the end of the third century BC; but he suggested that the insertion was probably made by Andronicus of Rhodes, hence no earlier than the middle of the first century BC (*Studien zur Entstehungsgeschichte der Metaphysik des Aristoteles*, Berlin 1912, 121).

2 *peri tôn posakhôs legomenôn ê kata prosthesin a*, *Vitae* 5, 23. A secondary problem, but one of considerable interest, is the identification of the source from which Diogenes derived his list. Before 1950, this was generally believed to be Hermippus, pupil of Callimachus and his successor as librarian at Alexandria. But this attribution was challenged by Paul Moraux, who argued that Diogenes' source was pre-Alexandrian

well known: it is Book Delta of the *Metaphysics*, which Aristotle himself often cites under the title *peri tou posakhôs* ... . Whatever utility Delta may have for the study of natural philosophy or metaphysics, it was clearly an unfortunate insertion in the real *Metaphysics*; its position between [Book 4], Gamma, and [Book 6], Epsilon, does not correspond to any internal necessity.'[3]

But if Delta was not part of the original *Metaphysics*, was the decision of Aristotle's editors to include it in an expanded version of that work a mistake? This question arises because the book contains a number of terms – e.g. *kolobos* (mutilated), *pseudos* (falsity), *thesis* (position) – that have little or no relevance to metaphysics,[4] while it lacks others – *hulê* (matter), *eidos* (form), and especially *entelekheia* or *energeia* (actuality) – that seem essential to that discipline. Indeed, some of the terms, e.g. *stoikheia* (element), *phusis* (nature) and *sterêsis* (privation), might be thought to be more appropriate to the philosophy of nature than to metaphysics, and in fact the discussion of *aition* (cause) in ch. 2 of Delta is a doublet of *Physics* 2.3. These considerations might suggest that in its original form Delta was a lecture or series of lectures which Aristotle gave at various times in his career, not as a prelude to the course on metaphysics, but with the more practical purpose of introducing his auditors to the complexity of commonly-used terms that had become part of the philosophical vocabulary. In this process certain terms would be omitted, others added, as the particular occasion dictated.[5] The theory would also explain why no single redaction of the lecture could be considered complete, thus answering an

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and is to be found in the Athenian Peripatos itself. As the probable compiler of the list Moraux names Ariston of Ceos (*c.* 228 BC), successor to Lycon as scholarch of the Lyceum (*Les listes anciennes des ouvrages d'Aristote*, Louvain 1951, 210-47; on Ariston, see 'Ariston de Céos', *Dictionnaire des philosophes antiques* I, 398-400). Moraux's thesis was rejected by Düring ('Ariston or Hermippus?', *Classica et Mediaevalia* 17, 1956, 11-21) but supported by other scholars; Moraux summarizes the controversy in *Der Aristotelismus bei den Griechen* I, Berlin and NY 1973, 4, n. 2. (To the sources cited there should be added J.P. Lynch, who thinks that 'Moraux has made a brilliant and plausible case', *Aristotle's School*, Berkeley CA 1972, 148.) In a paper prepared for a congress on Diogenes but published posthumously, Moraux himself was reluctant to make a final judgement ('Diogène Laërce et le Peripatos', *Elenchos* 7, 1986, 247-94).

3 Op. cit., 73. Similar opinions are expressed by Jaeger (*Aristotle*, tr. by R. Robinson, 2nd ed., Oxford 1948, 203) and F. Nuyens (*L'évolution de la psychologie d'Aristote*, Louvain 1948, 175, n. 81), and more tentatively by Ross (*Aristotle's Metaphysics* I, 2nd ed., Oxford 1948, xxxii).

4 Moraux in fact asserts that the treatise entitled *peri tôn posakhôs legomenôn* in the catalogue of Diogenes is part of a group of works dealing with dialectic, not metaphysics (op. cit., 73-4). If then Aristotle's editors did make this treatise Book Delta of the *Metaphysics*, as he contends, they misunderstood its character.

5 This hypothesis was advanced by A. Mansion (*Introduction à la physique aristotélicienne*, 2nd ed., Louvain 1946, 36), and Düring offered a similar explanation (*Aristoteles*, Heidelberg 1966, 593). The latter points out that the 'lexicon' would thus contain elements from both the early and the later periods of Aristotle's academic career.

objection against Delta that was current in the time of Alexander (345,4-6).

Even if we concede, however, that Delta is more than a lexicon and occupies its rightful place within the structure of the *Metaphysics*, there remains the problem of its apparent lack of internal coherence: the fact that there seems to be no discernible order or connection among the terms with which Aristotle deals. The most trenchant expression of this criticism is that of Bonitz, who asserted that it is useless to attempt to discover any principle governing either the selection of terms that occur in Delta or the order in which they are presented.[6] In stark contrast to this negative judgement is the view of Thomas Aquinas, who regarded the *Metaphysics* as a unitary whole and Delta as an integral part of that whole. It is, he thinks, both a natural sequel to the preceding book, in which Aristotle has established the subject-matter of metaphysics or first philosophy, and also a necessary introduction to the following book, which deals with the things that fall within the purview of this science. 'And because the subjects that this science considers are common to all things and yet are not predicated univocally of all, but in a primary way of some of them and in a secondary way of others, ... [Aristotle] first distinguishes the meanings of terms that come under the consideration of this science.'[7] Thus Aquinas agrees with Alexander (344,20ff. and nn. 3 and 7 to the Translation) that the function of Delta is to expound the meanings of terms that are 'equivocal' in the sense that they name a primary analogate and are also applied to other things because these latter share in some nature by being referred to the thing possessing that nature in the primary way. Since the vocabulary of metaphysics comprehends so many terms that are equivocals of this sort, i.e. by analogy, there is good reason to believe with Aquinas that Aristotle must first clarify the most important of them before proceeding to deal with the things that they mean: being and unity,

6 *Aristotelis Metaphysica, Commentarius*, Bonn 1849, reprinted Hildesheim 1960, 20. He goes on to say: 'I suspect that in this book Aristotle merely collected certain words that are used most frequently without establishing [any criterion] for their selection or arrangement, and that he wrote this commentary separately, so that [Delta] has no close connection with either his physical or metaphysical treatises.'

7 *In Metaphysicam Aristotelis Commentaria*, ed. Cathala, 3rd ed., Turin 1935, 749. R. McInerny has made a careful analysis of Aquinas' treatment of Delta ('The Nature of Book Delta of the *Metaphysics* According to the Commentary of St Thomas Aquinas', in *Graceful Reason*, Toronto 1983, 331-43). Especially useful is the author's schematic presentation of the way in which Aquinas divides the contents of the book (338-9). Aquinas discovers an organic relationship among the terms contained in the book, and although the distinction that he employs may seem to be excessive (Reale), his attempt provides a needed corrective to Bonitz's assertion that Book 5 lacks any internal unity.

substance and accident, potency and act, and the other great themes occurring in the *Metaphysics*.[8]

The assessment of Ross that, 'Delta is evidently out of place where it is, and as evidently it is a genuine Aristotelean work' (op. cit., xxv) can be taken as representing the opinion of most scholars in the period after Jaeger. But a refreshing dissent has been voiced by Giovanni Reale,[9] who believes that 'we possess good reasons for reading [Delta] precisely in the place and position in which the tradition has transmitted it' (338). The chapter that Reale devotes to Delta provides a brief but excellent history of the controversy this book has occasioned, and can well be read as a prelude to its study. He offers an eminently sensible judgement about the purpose of Delta: '[it] seems to have the character of a preliminary classification of terms which the inquiry of the successive books makes use of as well as examines' (342). And he rightly questions the popular view that Delta was originally an independent work, pointing out that it has no introduction or conclusion (344). These omissions would be inexplicable if Delta were intended to be read as a separate treatise, whereas they are tolerable if the book is taken as an introduction to metaphysical concepts that will be further explicated and developed as the discussion proceeds.

Alexander asserts unequivocally that Delta is the work of Aristotle, basing his judgement on the internal criteria of its style and contents (344,3-5). He is also convinced that it forms part of the *Metaphysics* because Aristotle has shown in the preceding books that the task of first philosophy is to consider being and its attributes, and that project, he implies, is advanced in Delta (id., 4-11). As if anticipating the later objection that Delta is wrongly placed between Gamma and Epsilon, he argues specifically that its position is the right one, on the ground that Book 2 (apparently an error; he means Book 3) contains a forward reference to Gamma, 1004a28, where Aristotle says, 'after distinguishing the various ways in which each thing is expressed, we must then explain, by reference to what is first in each predication', etc.; but Bonitz has shown that his interpretation

8 Another Aristotelian commentator in the classical tradition, Theophilus Corydalaeus (*c.* 1574-1646), sought to establish the unity and coherence of Delta. C. Noica offers a summary of his treatment ('Le livre *Delta* de la *Métaphysique* interprété par Théophile Corydalée', in *Proceedings of the World Congress on Aristotle* II, Athens 1981, 466-8). According to Theophilus, the term *ousia* (substance), which constitutes ch. 8 of Delta is the central theme of the book. He considers the terms in the seven preceding chapters to be of a 'metaphysical' nature, and those in the remaining chapters to have a 'logical' character, presumably because they name attributes or conditions derived analytically from the nature of substance, although Noica does not explain this point.

9 *The Concept of First Philosophy and the Unity of the Metaphysics of Aristotle*, ed. and tr. from the 3rd Italian ed. (1967) by John Caton, Albany, NY 1980, 338-48.

of the earlier text is erroneous (op. cit., 19-20). But Alexander is on firmer ground when he argues, as does Aquinas, that the discussion of terms having a variety of meanings is the necessary sequel to the establishment of the subject-matter of metaphysics, a topic that Aristotle has dealt with in Gamma (344,24-345,2). Alexander also takes account of an objection that Delta is incomplete because it does not include *all* terms that have multiple meanings. The purpose of the book, he replies, is not to deal with all the equivocals, not even all those that are equivocal by reference, but only those that are attributes of being *qua* being (345,4-11), since being and its attributes are the proper concern of the first philosopher (344,5-11).

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The translation has been made from Michael Hayduck's edition of the Greek text (*CAG* 1). Square brackets [ ] in the translation enclose words not found explicitly in the Greek text that seem necessary to an adequate expression of Alexander's thought.

I am greatly indebted to the editor, Richard Sorabji, who reviewed a number of passages in the translation and showed me how they could be improved; and to my colleague at Marquette University, Professor Thomas Caldwell, SJ, who undertook the onerous task of putting the MS into its final form.

Textual Emendations

The following departures from Hayduck's text have been adopted in the translation; they are also reported in the notes at the point of their occurrence. 'S' refers to the Latin version of Alexander's commentary by John Sepulveda as reported in Hayduck's apparatus.

385,15-16	Omitting *kai hothen ... hê metabolê.*
348,20	Reading *ou mên all' idiai diêirêtai* (after S) for *ou mên all' êdê diêirêsthai.*
350,9	Omitting *kharin.*
360,13	Omitting *genesis.*
361,32	Transposing *khôris* to follow *genesthai*, and supplying *ekeinou.*
363,2	Reading *ho* before *tauton* (Bonitz).
363,19	Reading *koinon ton* for *koinoteron* (Bonitz after S).
365,27	Reading *to* for *tôi* (Bonitz).
367,6	Reading *kath' ho* for *katho.*
367,13	Reading *tauton* for *heteron.*
368,16	Reading *to arkhêi* for *to arkhê.*
368,21	Reading *di' ho* for *dio.*
369,19-21	Omitting *epizêtêsai ... hautôi einai.*
370,21-2	Reading *ei touto mê kuriôs eien* (A) for *ei touto eien.*
370,33	Reading *tode* for *tade.*
371,5&8	Reading *to mousikon* for *ton mousikon.*
375,12	Reading *autou tou einai* (Bonitz after S) for *autou einai*
378,2	Reading *ousian kai kata* for *ousian kata* (Hayduck).
378,35-379,1	Ommitting *dunatai de ... ta genei.*
379,36	Reading *onta* for *panta.*
383,36	Reading *auto to tôn* (A and S) for *to auta tôn* (LF).
384,16	Omitting *oukh*, bracketed by Hayduck.
384,23	Adopting Bonitz's conjecture, *ên an*, for the corrupt *ê oun.*
384,24	Reading *hôs thermôi* for *hôs puri.*
384,35-6	Reading *to epi tôn* (LF) for *to tôn.*
385,6	Reading *topou tinos* (Bonitz) for *toutou tinos.*

387,1	Supplying *protera esti tês leiotêtos: hê gar euthetês* after *euthetês* (Bonitz after S).
387,7	Reading *prôtou* for *prôtôi* (Bonitz).
392,21&22	Reading *hautôi* for *autôi* (Bonitz).
397,10	Reading *toutesti* for *ta de* (Bonitz after S).
399,11-12	Reading *ei hê* for *ê hê*, (Bonitz), and punctuating with interrogation point after *katêgoreitai*.
404,20-1	Translating from S to fill in the lacuna in the text.
405,30	Reading *energeia men* for *energeia hê* (Bonitz).
407,19	Reading *ou dunamenou* for *dunamenou*.
411,31-2	Transposing *touto de ... kharin* to the end of the sentence.
413,12-13	Transposing *kai teleion men ... ektos ekhon* to line 11, before *epi de tou peratos*.
413,18	Omitting *en tois allois* (Bonitz after S).
414,26-9	Omitting *hou legomena ... kata tode*, bracketed by Hayduck.
416,31	Omitting *tôn en autôi*.
417,20	Reading *pros* before *allêla*.
419,31	Supplying *kai to holôs mê pephukos horasthai* after *horômenon* (Bonitz), and reading *tôi proeirêmenôi tôi* for *hôs proeirêmenou tou* (Bonitz after S).
422,7	Omitting *ek genous ta merê*.
422,22	Reading *eidos* after *legôn* (LF).
423,19-20	Omitting *kai auto to sperma*.
425,34	Reading *tôi* for *hôs* (Bonitz after S).
428,30	Reading *katêgoreitai* for *kai ta hexês*.
428,31	Translating from S to fill in the lacuna in the text.
430,36	Reading *oud' eti* for *ouketi* (Bonitz).
432,4-5	Translating from S to fill in the lacuna in the text.
433,1-2	Omitting *dio ... mê ontos*, inserting *men* after *to*, and reading *toiauta de* for *kai toiauta*.
434,1	Reading *hoti mê ontos estin* for *hoti mê estin hêi esti toutou*.
434,4	*hupo triôn eutheiôn* supplied from S (*tribus rectis lineis*).
434,26	Reading *oikeiôs* for *oikeios* (A & S).
438,6	Supplying *sumbebêkos esti*.
438,7	Reading *ê* before *entautha*, and *hoti en* for *hoion en* (LF).
438,29	Reading *apodeixeis* for *apodoseis*

Alexander of Aphrodisias

On Aristotle Metaphysics 5

Translation

[The Commentary of Alexander of Aphrodisias] 344,1
on [Book] 4* of the *Metaphysics*
[of Aristotle][1]

[INTRODUCTION]

In [the book] of the *Metaphysics* entitled Delta, Aristotle[2] distinguishes some of things that are expressed in various ways.[3] That it is the work of Aristotle is evident both from its diction (*lexis*) and from its contents; that it also belongs to this treatise is obvious from what he has already said [in the earlier books of the *Metaphysics*]. For he has shown that it is the business of the first philosopher to deal with being (*to on*) in general, and with the common attributes (*ta huparkhonta*) of being; the common attributes of being are those that all the sciences (*epistêmê*) use. For the investigation (*theôria*) of these common attributes is the province of the first philosopher, since it is not the proper task of any of the [particular] sciences to deal with them; for none of these attributes belongs to any being inasmuch as it is this particular thing (*tode ti*), but to being *qua* being, and the treatment of this latter is the concern of the first philosopher. The use made of these common attributes shows the necessity of there being a separate treatment of them, for all the sciences employ them to prove their own subject-matter; but their common use [by all the sciences] confirms the fact that they are not the proper concern of any of the particular sciences. In addition to these points, it has been established that first philosophy speaks in scientific fashion of the topics that the dialectician discusses in light of commonly held opinions (*to endoxon*); and since the dialectician treats of what is common to all or to most things, he too deals with things that are expressed in various ways. Hence dialectic is similar to first philosophy with respect to the subjects with which it deals, but its method is logical rather than scientific.[4]

That this is also the proper place (*taxis*) for the book [in the *Metaphysics*] is obvious from the fact that [in it] Aristotle distinguishes those things expressed in various ways that [all] the sciences employ and that are the common concomitants of being. And in Book 2 [Beta], he also said that the philosopher must treat of these things,

* See note 1 on p. 129.

distinguishing the number of ways in which each of them is said. Now Book 3 [Gamma] showed what subjects first philosophy investigates;[5] and the immediate sequel to this last point is to examine those first [propositions] that must be used in order to investigate and prove the other things that are going to be proved. Hence Aristotle spoke first about the axiom which [says] that in every case either the affirmation or the denial must [be true], since this axiom is useful for formulating proofs. After that inquiry [in Gamma], he distinguishes, in this book, the things that are thus expressed in various ways.

Citing as evidence the fact that Aristotle does not distinguish all the things that are expressed in various ways, some think that the book is incomplete.[6] But that this is not the case is clear from the fact that in this book it is not his intention to do this for [all] such things without exception, but only for those that all the sciences use as common in proving their own subject-matter. For we do not propose to speak either about the equivocals (*ta homônuma*), or about all those that are derived from one thing and referred to one thing, but [only] about things to which the phrase 'in various ways' applies because they belong to being *qua* being, which is itself expressed in various ways.[7] Hence Aristotle does not deal with mathematical objects nor anything of this sort, although these things too are expressed in various ways, because it is not by employing them that the [particular] sciences prove any of the things that are their subject-matter; but they use 'beginning' (*arkhê*), 'cause' (*aitia*), 'nature' (*phusis*), 'element' (*stoikheion*), and the like. Thus it is things [such as these], all of them common [to the sciences], that Aristotle distinguishes in this book, in the belief that they are appropriate to this treatise. From this fact it is even more obvious that the book is organized in this way, for if certain things have been omitted that are related to the ones [which Aristotle does discuss], they too could be distinguished according to the distinction given for things to which they are very close [in meaning].[8]

In this book, then, he distinguishes things that are the common attributes of being and that, because they are its concomitants, seem also to be expressed in various ways. He speaks first about 'beginning' (*arkhê*).

[CHAPTER 1]

It is evident that 'beginning' (*arkhê*)[9] does not accompany [only] one particular nature of being, for all the sciences employ [their own] particular starting-points.[10] Aristotle gives seven ways in which beginning is expressed.[11] Beginning means [1], 'that [part] of a thing' of which it is said to be a beginning 'from which one would first move'

[1012b34], for the beginning of a line or road is the point from which we begin to traverse it. Thus the opposite termini (*peras*) of the same road are both starting-points for those who begin [to travel it] from this direction or from that; hence a beginning of this sort is sometimes a terminus as well.

Beginning means [2] that [point] from which, if we begin with it, the result intended will be best achieved, as in the case of learning (*mathêsis*); for in learning we often begin not from what is first [in the thing itself], but from things which the learner might follow most easily. In the *Categories* Aristotle gave an excellent example [of this procedure] in his account of 'quality' (*poiotês*) [8b25], where he said that quality is that in virtue of which we are said to be men 'of such a kind'; through the term 'of such a kind', which, although posterior [in nature] to quality, is more familiar [to us], he teaches us what quality is. And natural philosophy (*hê phusikê*) does not [begin] from the starting-points that are first [in nature], but from perceptible things, because these are more familiar to us; and artisans (*tekhnitês*) take as the starting-point for the things which come to be at their hands that from which, if they begin there, the thing which is coming to be would come to be most easily.

Beginning means [3] that constituent[12] of the thing coming to be from which it begins to come to be. The heart is a beginning in this way, for the formation of the animal [begins] from it; so too are the foundation of a house and the keel of a ship. The added word 'constituent' distinguishes a beginning of this kind from the productive (*poiêtikos*) kind, that from which is the beginning of movement (*kinêsis*), about which Aristotle will speak next. This [third sense of] beginning differs from the one before it, because the latter was a beginning [from which something] came to be easily, while this is the beginning of [a thing's coming to be] in general. Hence this beginning is definite (*hôrismenos*), whereas beginnings of the second type are different for different things, and may also be different for the same thing at different times.[13] Matter (*hulê*) would be a beginning in this [third] sense.

Beginning means [4] 'that non-constituent from which something first comes to be', i.e. that from which is the beginning of movement. The productive principle is [a beginning] of this sort, as Aristotle makes clear by adding, 'and that from which movement and change naturally first begin'. Or [it may be that] this text, 'that non-constituent from which something first comes to be, and from which movement and change naturally first begin' [1013a7-8], contains two statements rather than one. In the first part, 'that non-constituent from which something first comes to be', Aristotle would be calling the knowledge of the end (*telos*) or goal a 'beginning' (for in the case of things that are to be done, the end is the first starting-point for the

performance of an action, and a little later on he does refer to the end as a starting-point). In the second part of the text, 'and that from which movement and change naturally first begin', he would [then] be speaking about the productive [cause]. And in this way he would be distinguishing eight [meanings of] 'beginning' [rather than seven].

Beginning[14] also means [5] that at whose choice (*proairesis*) things that come to be and change take place – rulers, for example, at whose choice things under their control come about. Art (*tekhnê*) too is called a beginning in this way, and especially the architectonic art, to which are referred the arts subordinate to it and the tasks that they perform. But this beginning is not a starting-point in the same way as the productive one, because this beginning is authoritative and capable of knowing the form (*eidos*) [of the thing produced], but the productive beginning is that from which the thing began [to come into being] from a certain kind of movement.[15]

Beginning also means [6], 'that from which the thing can first be known', as the hypotheses are called the beginnings of demonstrations (*apodeixis*). By 'hypotheses' Aristotle means those principles (*arkhai*) [found] in each science and art; the sciences call them 'hypotheses' because they are not derived from demonstration but are taken as evident. Beginnings of this sort would also be principles (*arkhai*) of the immediate premises, those [found] in each science; for the [propositions], 'Good is advantageous and evil harmful', or 'Good is to be chosen and evil shunned', are immediate premises for the scientific treatment of ethics, but their principle (*arkhê*) too is knowledge of the end and of happiness (*eudaimonia*).[16] And the immediate premises are beginnings in this way.

After stating the number of ways in which 'beginning' [is expressed], Aristotle remarks that the causes too are expressed in an equal number of ways, and adds this explanation: 'for all the causes are beginnings' (1013a17).[17] He says further that what is common to all beginnings is that they are first with respect to the things of which they are the beginning, 'as that from which something either is or comes to be or is known' (1013a18). Thus the foundation of a house or the keel of a ship or the matter of each thing are that from which these things *are*; and the beginning of movement is that from which something *comes to be*; and the hypotheses are that from which
347,1 something *is known*. But having stated that what is common to all beginnings is that they exist before the things of which they are beginnings, he says that beginnings differ in that some of them are constituents of the things of which they are beginnings, while others are extrinsic to them. Matter and element, then, are beginnings as constituents ('element' is the name given to the proximate (*prosekhês*) matter of each thing, the matter that is already this particular body (*sôma*) in actuality (*energeiāi*)); for they are the first things from

which something comes to be because they are its constituents, whereas [other] beginnings are extrinsic. And Aristotle adds what these[18] are. 'Hence the nature [of a thing] is a beginning and also the element, and thought and choice' [1013a20]. Having said that some beginnings are constituents of that of which they are beginnings and that others are extrinsic, he says that for this reason some of them are [beginnings] in this way but some of them not in this way. 'The nature' is 'a beginning and also the element', for these are beginnings as constituents; for they are the first things from which something comes to be because they are its constituents. By 'nature' he might here mean matter,[19] and by 'element' the proximate matter, which is already a particular body in actuality.

The things that Aristotle next mentions, thought (*dianoia*) and choice and similar ones, are examples of beginnings that are ends or productive, which are not constituents of what comes to be; and rulers were included among these. He adds, 'and the substance and that for the sake of which', meaning by 'substance' (*ousia*) the formal principle (*hê kata to eidos arkhê*) (for the form is the substance of each thing),[20] and by 'that for the sake of which' the end. He includes these two because the form seems to be both perfection (*teleiotês*) and end in things which come to be naturally;[21] and these, [form and end], would also be among [the beginnings] that exist prior [to what comes to be], but are not its constituents. He states to which of the [types of beginning] that have been mentioned these are reduced, saying: 'For the good and the beautiful are the beginning of knowledge and movement for many things' (1013a21). [It is] form [that is the beginning] of knowledge, for the beginning and cause of knowledge of the thing is the knowledge of its form;[22] but he calls the beginning of movement 'the end', that which is the good (*to agathon*) and the beautiful (*to kalon*). For the end appropriate to each thing is its good and its beauty, not however as a constituent of the thing when it is cause of its coming to be, but as [itself] coming to be along with the thing as the latter reaches its completed state. In a similar way the form too is not a constituent [of the thing that comes to be] when it is a beginning in the sense that it exists beforehand and is known beforehand. The beginnings said to be such in this way are included in the text, 'that non-constituent from which a thing first comes to be'. Or it may be that the end is the starting-point referred to in that text, whereas the arts indicate the formal principle, and among these especially the architectonic arts, for they are, in a way, the forms of that which comes to be.[23]

Aristotle says, then, that what is common to all beginnings is that they are the first point of that of which they are the beginning. The beginning of the road [is a beginning] in relation to an already existing thing of which it is the beginning; the foundation of a house

and the heart of an animal [are beginnings] in relation to something that is coming to be (for they are the first parts of these things as the latter come to be); and the axioms of demonstration are beginnings in relation to things coming to be known, because it is from them that demonstrations originate. There is in fact a beginning of things that already exist and of things that are still coming to be, and many things too that are coming to be known have beginnings of the knowledge of them. The fact, then, that they pre-exist is the characteristic common to [all] beginnings, but some beginnings are constituents of the things of which they are beginnings, as nature and matter of things that are generated naturally; moreover, the foundation is also the beginning of the house in this way and the heart of the animal, and [the point] in a thing from which one might begin [to traverse it]. But thought and choice and the arts are indeed beginnings of the things that come to be through them, but not as constituents of what comes to be. As we said before, the end too would come under the formula, 'that non-constituent from which a thing first comes to be', and to this class we assign the productive cause as well; for in the case of things that are to be done the end too is a starting-point. But as the good is a beginning of action (*praxis*), so too, in many instances, is evil (*to kakon*), for in attempting to avoid it we perform certain actions.[24] Hence some manuscripts have this reading: 'For good *and evil* are the beginning of the knowledge and the movement of many things.'

Aristotle has said that beginning is expressed in as many ways as the causes, and he now proceeds to distinguish the causes. He gives four meanings of 'cause', those that he also set forth in the same words in the *Physics* (2.3); thus he is indicating that although in general 'cause' is expressed in the same number of ways as 'beginning', this [fourfold] division of the causes is nevertheless a more authoritative way of distinguishing them. Thus these [four] meanings of 'cause' are [found] in 'beginning' as well, only not according to this division. For matter was included in the formula, 'that constituent from which a thing first comes to be';[25] while the end [i.e. the final cause] and the productive cause are included in the formula, 'that non-constituent from which a thing first comes to be, and from which movement and change naturally first begin'. The end [i.e. the final cause] is expressed by the words, 'that non-constituent from which a thing first comes to be'; the productive cause by the words, 'that from which movement and change naturally first begin'; and the form [i.e. the formal cause] by [the reference to] the arts, for art is the form of what comes to be. And 'cause' can be expressed and distinguished in the senses in which 'beginning' is expressed; nevertheless, cause has been given its own divisions, [so that] beginning [is distinguished] according to the previous meanings, and cause according to those given

here.[26] However, everything that Aristotle now says about the causes is the same, and expressed in the same words, as what he said in Book 2 of the *Physics* [194b12-195b21]; hence it is to that source that we must look for our interpretation.

[CHAPTER 2]

> **1013a24** Cause means in one way that constituent from which something comes to be.

Aristotle is speaking [1] of matter, and he adds the term 'constituent' to distinguish privation and the contrary (*to enantion*) from matter, for a thing comes to be from privation as well, as he showed in Book 1 of the *Physics* [ch. 8], and also from its contrary, but these are not constituents of what comes to be. Because it is a constituent, matter is also distinguished from the productive cause, for shortly before, he said about a beginning of this kind that it is 'that non-constituent from which something first comes to be'. By 'material cause' he means not only the proximate (*prosekhês*) matter of each thing, but also the species (*eidos*) and genera (*genos*) of matter. This piece of bronze, for instance, is the [proximate] matter of this statue, and bronze of a statue and wood of a figurine, for these are the material causes of the 349,1 statue.

Cause means[27] [2] the form, 'that is, the formula of the essence and the parts in the formula'.[28] Aristotle is speaking about the formal cause, but the phrase, 'the formula (*logos*) of the essence (*to ti ên einai*)' lacks the [explicating word] 'that manifests (*to dêlôtikos*)', for the formula that manifests the essence is the definition (*horismos*).[29] He calls the form 'model' (*paradeigma*) not as do those who talk about the Ideas, for he certainly does not at all believe that any of the things generated naturally comes to be by reference to any model existing outside it. (For natural causes do not produce what they produce by first taking thought, as production takes place in the arts, unless perhaps one were to say that the thought (*noêma*) is a model for the things that come to be according to it.)[30] But here it is the form itself that comes to be in matter that he calls 'model', because nature aims at this form. For whatever produces for the sake of something produces what it does out of desire (*ephesis*) for that [at which it aims]; hence it no longer continues to act once the thing for whose sake it was acting has been brought to completion. And all the things that are generated naturally are generated for the sake of something, i.e. for some definite form and completion, and when each of them has finally reached this completed state, its process of becoming is termi-

nated. Therefore, these things have this completed state as their model.

'[The formula of the essence] and its genera' [1013a27]. As in the case of the material cause Aristotle took the proximate matter and said that the genera of the proximate matter are reduced to the same cause, so he deals with the form in this way; for both the form of each thing and the formula signifying its essence and the genera of this form are equally causes. To use his own example, the proximate form of the octave is [the formula] 'two-to-one' (for the octave is in a ratio of the double, [2:1]); but its generic form is number (for both two and one are included in number). But [he adds], 'the parts in the formula as well' [1013a29]; now the whole (*to holon*) [composed of these parts] was [the formula], 'two-to-one'. What he means is that the parts of the formula that signifies the essence are themselves causes, if the whole is in fact [composed] of these parts. Thus what serves as the formal cause of this form, i.e. of this definition, would be, as [proximate] form, the definition;[31] as genus, the ratio; and, as parts, the things of which the definition is composed.

Cause also means [3] 'that from which the first beginning of change [proceeds]' [1013a29]; Aristotle is speaking about the productive cause. Some things come to be not only by moving but also by being at rest, for they are brought to a halt by other things just as they are set in motion by them, but what brings them to a halt would be the productive cause of their being stationary; hence he adds, 'or of rest'. He speaks of 'change' (*metabolê*) rather than of movement so that his statement might include both becoming (*genesis*) and perishing (*phthora*). He adds 'first' because the productive cause is first to the greatest degree. For what resides within the thing coming to be and thus produces subsequent [movements in it] owes the fact [that it can do so] to the one who generated the thing;[32] and instruments do not of themselves possess [the power] to impart motion, but they too have as their cause the cause that is first and outside the thing coming to be. The words, 'And in general what produces [is cause of] the things produced, and what induces change of the thing that changes', indicate generic productive causes: for father and child belong to the genus of 'producing' and 'being produced' respectively, and these latter belong in turn to the genus of 'inducing change' and 'changing'.

1013a32 Again, the end, i.e. that for the sake of which, [is a cause].

Aristotle speaks [4] of the final cause; this is the one for the sake of which other things [are done], as walking, for instance, is for the sake of health. For why does a man walk? Our answer is, 'in order to be healthy'.

'And whatever things take place between [the beginning of an action and its] end,[33] when something else has set the process in motion' [1013a35]. Having given health as an example of the final cause (for health is the cause of walking as its end), Aristotle says that all the things that are done between [the beginning of an action and its] end by the one who is seeking the end are done for the sake of the end. Hence the final cause is the end of all these intermediate things as well; for it is not only walking that is done for the sake of health, but also losing weight, if this effect might be produced by walking, and purging too is for the sake of health. Moreover, the medicines that are used in purging, and the instruments through which treatment is given, are also for the sake of the end, for the physician employs them [as means] to the end. But although all these things are for the sake of the end, they differ in a certain respect, inasmuch as some of them – losing weight, walking, purging – are actions of various kinds, whereas others – medicine, a scalpel – are instruments by means of which the actions are performed.

1013b3 These then are almost all the senses in which causes are spoken of.

Aristotle adds the qualification 'almost' because there are certain things that are not causes in the primary sense, but accidentally (*kata sumbebêkos*); these he will also mention. There are many causes of the same thing that are such in themselves (*kath' hauto*)[34] and not only accidentally, although not in the same sense,[35] but each of them in a different way; this he states clearly in the words, 'Since the causes are spoken of in several ways, it follows that there are several causes of the same thing, [causes that are such] in themselves[36] and not accidentally; for example, both the sculptor's art and the bronze [are causes] of the statue', and not accidentally,[37] but *qua* statue, 'but one of them as matter and the other as that from which the movement [proceeds]'. (The phrase, 'not in virtue of anything else', is equivalent to a repetition of 'not accidentally'.) There are also things that are causes of each other, but not in the same way: one of them is cause of the other as producing it, while the latter is cause of the former as the end envisioned; for in this way exercise produces good physical condition, and good physical condition is the end at which exercise aims. He also states how the same thing seems to be the cause of contraries, although not when it is in the same state: by its presence it is cause of one contrary, by its absence it is cause of the other – this latter case he calls 'privation' (*sterêsis*). He also says that both these are causes as agents.

351,1 **1013b16** All the causes mentioned here fall under four senses which are the most obvious.

The sequel to this text is, 'but some of them are causes as substrate' [b21], but between these two statements there is interposed a discussion of the substrates (*hupokeimenon*) containing a division of the material causes; this latter text begins with the words, 'For the letters[38] are causes of the syllables' [b17]. [One explanation of this interruption is that][39] Aristotle [wished to] instruct us about the different kinds of substrate by first enumerating them; for matter in the primary sense of the term is substrate of the things [generated] from it in a different way than letters [are substrate] of the syllables or premises (*protasis*) of the conclusion (*sumperasma*). For matter receives the form by way of alteration (*alloiôsis*),[40] but the things he calls 'manufactured' do not come to be through the sort of combination (*sunthesis*) that involves a change of form;[41] and letters are [material causes] by way of their combination into syllables; and the simple bodies [are causes] through combination and alteration;[42] and the premises too are causes of the whole syllogism by their combination, for they are causes of the conclusion not as matter, but as a productive cause; and in the whole syllogism the premises are like matter, but the conclusion like form.[43]

Therefore, Aristotle either intended to use the [parenthetical] text to instruct us [about the various kinds of substrate] before enumerating the causes in detail, or he began with the idea of giving an appropriate example for each of the causes; but having used more examples for the material cause because the differences among material causes are more numerous, he took up [the argument anew] by adding, 'but some of these [are causes as ...]' [1013b21]. And thus he started over again, but in abbreviated fashion, giving an appropriate example for each cause but using the examples of matter to mention at the same time the [different kinds of] form which matter underlies, for they too are causes. For by the words, 'the letters are causes of the syllables', he mentions both causes, [material and formal].[44] 'But some of these', he says, 'are causes as substrate, others as the essence – the whole and the combination and the form' [1013b21-3]. (Thus he distinguishes the causes of which he has spoken, for some of them are causes as matter, others as form.)[45] By 'whole' he does not mean the whole with its parts (for in that way he would be calling the composite (*to sunamphoteron*) 'form'), but rather the wholeness and completeness that supervenes on the parts.[46] 'Combination' has a similar meaning, for although it is something other than the parts that are being combined, it is over and in them when they have been compounded. After stating that, 'others are causes as the essence', Aris-

totle adds what the essence is in each of the instances of which he speaks; for the whole is the form that is over the parts, which function as matter, and the combination [is the form that supervenes] over the letters, for the syllable [has a form] of this sort. The term 'form' fits all these cases, but would be properly applied to those things that have matter in its primary sense as their substrate.

When Aristotle says, 'and the seed and the physician and the man who made a decision' [1013b23], he is pointing out the productive cause; even the man who has deliberated about something and decided that it ought to be done contributes to its coming-to-be. The sequel to this statement is, 'but the rest are causes as the end and 352,1
the good of the other things'; 'the other things' are of course those which have an end. Since he said 'the good' in addition to 'the end', he shows why the end and that for the sake of which are such by adding, 'For that for the sake of which [other things are done] is the best'.[47] 'Let us assume that it makes no difference whether we call it good or apparent good.' For the end of each thing is either its real (*ontôs*) or its apparent (*phainomenon*) good, for even if [what we seek] is not truly good, nevertheless we pursue it eagerly as something good. 'For every art and every inquiry, and similarly every action and choice, is thought to aim at some good', as he said at the beginning of the *Nicomachean Ethics*.

1013b29 But the varieties of the causes are many in number.

By 'the varieties (*tropoi*) of the causes'[48] Aristotle means the different kinds of cause that result from the way in which the causes are explained, as he makes clear by adding, 'for the causes are expressed in various ways.' He says, then, that although the varieties are many in number, they become fewer when reduced to those that are common and universal, so that all the varieties are reduced to six classes (*genos*) of cause, and each of these classes is spoken of in two ways, with reference to either actuality or potentiality, as he will show. First, however, he shows what the varieties of the causes are, and that they are numerous. For the explanation of the causes differs inasmuch as it refers to a cause that is proximate and prior or to one that is not proximate but posterior, because the species and genera of the proximate causes are causes of the latter. For the cause that includes the proximate cause, since it [extends] more widely than the latter, is always posterior to it;[49] and this [principle applies] to every kind of cause: to the material and formal causes, and similarly to the others. And the statement that some causes are said to be such in a prior and others in a posterior sense [1013b31] applies even to causes of the same kind; for material causes that are prior are of the same kind as those that are posterior, and so too the formal causes [that

are prior and posterior] to one another, and similarly in the case of the other causes.

What is accidental is also a variety of cause; for things incidental to causes that are such in the primary sense, or to which causes that are such in the primary sense are incidental, are called accidental causes. Again, the genera of these accidental causes [are also causes]; for the cause of the statue in the primary sense is the sculptor, but since the sculptor happens to be Polyclitus, but Polyclitus happens to be a man, Polyclitus too is a cause of the statue, as are man and animal. And some accidental causes are closer [to the effect] than are others, for Polyclitus is closer to the statue than is man. Again, Aristotle shows by his examples how accidental causes that are closer [to the effect] differ from those that are more remote, for although Polyclitus is an accidental cause, he is not a cause in the way in which *his* accidents are also causes of the statue, the white, for instance, or the musical, for these too will be called accidental causes of the statue, but ones further removed from it than Polyclitus. Aristotle also lists, as a general difference[50] of the various causes, their difference with respect to potentiality and actuality, for a man who is capable [of acting] is a cause in a different way than one who is already acting. 'And the causes that include [others] are always [causes] in relation to the particular cause'; he is speaking of the proximate cause, for this, unlike the causes that include it, is not common.[51]

1014a10 The things of which the causes are causes will be spoken of in the same number of ways as those mentioned.

Aristotle says that the things of which the causes are causes will be spoken of in the same number of ways as those that have been mentioned for the causes; he means the effects (*ta aitiata*), for it is of these that the causes are causes. 'In the same way' because among effects too some will be called proximate, others more common and remote. For *this* statue is a more proximate effect because its causes were something particular as matter and something particular as productive cause and [something particular] as end. This statue is therefore a more proximate effect than statue taken in the unqualified and universal sense, and statue in turn [is a more proximate effect] than image (*eikôn*), for image is more common, [i.e. universal], than statue. The words, 'and of this bronze or of bronze or of matter in general' [1014a12] can be understood as referring to the cause, for this [particular piece of] bronze is more proximate, as material cause, to the statue, while bronze and matter [in general] are more remote, so that both the cause and the effect possess proximity and remoteness in a similar way. But it is also possible to take 'bronze' in the above statement as meaning not cause but effect, [so that] the

metal-worker's art would be the productive cause of the bronze just as its substrate is its material cause, but the bronze [itself] is an effect; [thus] the bronze is both matter and cause of one thing, but the product of another. Proximately, then, this particular piece of bronze is the product and effect of the metal-worker, but more remotely bronze, and more remotely still matter in general.[52]

Aristotle says that there will be a similar situation with regard to the accidents of the effects, for the accidents of effects become in their turn accidental effects. Some of these will also be more proximate effects, others more remote. The accidents belonging to primary effects will be more proximate, such as those that belong to this particular statue, whereas the species and genera of these particulars will be more remote. Thus if the colour of the statue were red, this particular red is a more proximate accidental effect, red without qualification is a more remote accidental effect, and colour one still more remote.

> **1014a13** Again, both accidental and proper causes will be spoken of in combination.

Aristotle clarifies the method of combination by combining Polyclitus, an accidental cause, with sculptor, a cause in itself; but it is [also] possible to combine proximate causes that are such in themselves with proximate accidental causes, and more universal causes of the former kind with more universal accidental causes, and [these combinations can be made] crosswise as well. 'But all these varieties are 354,1
but six in number' [1014a15]. He says that the common and universal differences resulting from the varieties of the causes are six, and that each of these is spoken of in two ways. Of the six differences that he sets forth, two have reference to causes properly so called; for each cause of this sort can be considered either as the particular and proximate cause, or as the genus of this latter. Two other differences refer in turn to accidental causes, for among these too there are either particular causes or their genera. And two other differences [result] as causes that are such in themselves are combined with those that are accidental, as he said, or as each type is taken simply and separately by itself.[53]

Each of these six varieties will be spoken of in two ways, for [the causes are taken] either as acting or as being capable of acting. Aristotle also adds the difference between a potential and an actual cause in the words, 'They differ to this extent, that acting causes, i.e. those that are particular, exist or do not exist simultaneously with the things of which they are causes' [1014a20]. He says that the difference between acting and potential causes is that the former both exist and do not exist simultaneously with the effects towards which

their activity (*energeia*) is directed, but that this is not the case with potential causes, for it is not necessary that causes [and effects] spoken of in this way should co-exist. After the words, 'acting causes', he adds 'and particular things', those namely that are designated as [specific] acting causes and their effects,[54] for both the acting causes and what they produce are particulars: for *this* builder is building a house and *this* house is being built, and if the builder[55] is building a house, there must be a house that is being built. But if [the cause] were to be one who is capable of building a house, it would no longer be necessary that there should be a particular house under construction. Nor is it necessary that if the builder who is the potential cause of the house dies, the house built by him should also cease to exist.[56] Consequently, potential causes and effects do not necessarily either exist or perish simultaneously.

[CHAPTER 3]

1014a26 The primary constituent of which a thing is composed is called an element.

Aristotle shows that 'element' (*stoikheion*) is expressed in various ways by giving [1] the formula of element properly so called: 'that primary constituent of which a thing is composed, and that is indivisible in kind'; for an element is not indivisible in respect to quantity (*to poson*), but only in respect to kind. There are two readings of this text: 'indivisible in kind into another kind', and 'indivisible into the same kind'. If the first reading [is accepted], its meaning is easily understood; for the element cannot be divided into other and different kinds. For neither fire nor any of the other simple bodies is divided into parts of different kinds, but the syllable is not an element of the spoken word (*logos*) because it is divided into letters that are of different kinds,[57] whereas the result of being indivisible is that there is no division into things other in kind. Apart then from the addition of the phrase, 'into another kind', [the first reading] would have the same meaning as that conveyed by 'indivisible in kind', for what is indivisible in respect to kind cannot be divided into other kinds. But if the text is read 'indivisible into the same kind', it would mean, 'indivisible into elements', for the element must be indivisible into [other] elements, for if it were to be divided it would no longer be an element. In this case, however, it would be redundant to say, 'but if the element were to be divided, the parts would be of the same kind', because this point has been made clear by saying that the element is indivisible in kind, for obviously what is indivisible in this way would,

if it were to be divided, be divided into parts that are of the same kind, i.e. uniform with the whole (*homoiomerês*).

In saying, 'Similarly, those who speak of the elements of bodies too' [1014a31], Aristotle means those who made the atoms elements of compounded bodies, and Empedocles, who generated the other things out of the four [elements], and also those who posited some one particular body as their element, either one of the four [primary bodies] or an intermediate body; for according to all these [philosophers], the elements are indivisible in kind, but according to those who used the atoms as elements the elements are indivisible not only in kind but also in size (*megethos*). But Aristotle seems to say that the parts of syllables are not the elements of speech (*phônê*), for the former are parts of nouns (*onoma*) and of the sentence (*logos*), whereas the parts or elements of speech as specifically such are the vowels and [voiced] consonants that are simple and are not further divided into different sounds.[58] He says that the elements of geometrical proofs and in general those of demonstrations are said to be such in the same way as the elements mentioned above, for because these proofs are primary and simple and implicit in the proofs that come after them, they are called elements in geometry; they are not the result of the combination of other proofs, nor are they divided, in demonstrations, into other things different in kind, for the primary demonstrations, those that [serve] as principles [of other proofs], are not further divided into [more basic] demonstrations.[59]

Aristotle adds that people transfer the term 'element' from the sense just explained, and by reference to the similarity [to this proper sense] call an element [2], 'whatever, being one and small, is useful for many purposes' [1014b3]; for a thing of this sort is no longer an element in the strict sense, at least if an element is, 'the primary constituent of which a thing is composed', but the things now being spoken of are not such. 'What is small and simple and indivisible is called an element' in this way. And he goes on to say what things are said to be elements in this transferred sense: 'Hence it comes about that the most universal things are elements' (he means the supreme genera), since 'each of them, being one and simple, is in many things', and is no longer indivisible in kind, as is an element in the strict sense, but [is divided] because it is in all the things beneath it; but [each of them] is 'simple', because there is not even a definition of the primary genera, but not simple in the sense that it is indivisible. He says, '[Each of them is present] in all or most things',[60] because there are those who maintain that being too is a genus; and if this were the case, being would be in all things in the same way [as are the supreme genera]. 'And some think that the one and the point are principles and elements', since they are the smallest things and completely indivisible – by 'one' he means what is like a unit (*monas*). We do not

in fact put anything together out of units, but people call the unit an element of magnitude because it is present in every magnitude. And
356,1 even though numbers are constituted out of the combination of units, this is another mode [of composition], for no continuum is produced out of units.[61]

By the term 'one' Aristotle could mean the common [attribute] that is predicated of all beings. Hence the same people who say that being is a genus say that one is also a genus of beings, for (as was shown in the preceding book)[62] one and being are the same with respect to their subject. Aristotle makes clear how the [supreme] genera are simple and indivisible by saying, 'For there is no formula of them.' He says that for this reason some people think that the genera are elements of each thing to a greater degree than the differentiae, because they are also more common; for they are in more things and are simpler [than the differentiae] and are the first parts of the definition. He says that what is common to elements is to be the primary constituent of each thing. Obviously, however, the term 'primary constituent' is not understood in the same way with reference to all elements. For in one way it is understood as that which is a subject and a part of the *thing*, and this is the meaning that Aristotle expressed by defining element as 'that primary constituent of which a thing is composed, and that is indivisible in kind', a meaning that he himself gave as that of element in the primary sense. But ['primary constituent' is understood] in another way as that which is predicated and which is part of the *definition* but not of the subject as subject,[63] and the genera are constituents of this sort. But how is element one of those things that are expressed in various ways, if [as Aristotle says] it is common to all elements to be the first constituent? The answer is that one element is such in the primary sense, and the other kinds of element are so called in virtue of their similarity to element in the primary sense.

Since Aristotle has said that in demonstrations the primary demonstrations have a function similar to that of the elements in other things, he clarifies what he means by adding, 'Syllogisms of this sort are the first of the three,[64] those that [proceed] by means of one middle term.' By 'first of the three' he means those syllogisms in the first of the three figures, such as those that are first in the first figure; for it is by reduction to the syllogisms in this figure that syllogisms in the other figures have their being. He says, 'that [proceed] by means of one middle term', to [make it clear that] he is referring to simple syllogisms in the first figure; for there can also be certain complex syllogisms in the first figure but these do not [proceed] by means of one middle term, and they are potentially more than one syllogism and are not first but complex. Or else, 'the first of the three, those that [proceed] by means of one middle term', is equivalent to, 'the first

syllogisms, those consisting of three terms of which one is the middle term'; syllogisms such as these, because they are first, are implicit in the demonstrations that come after them. (For the primary type of demonstration is that constituted out of immediate premises and three terms, one of which is taken as middle term.) The conclusions of the first syllogisms are assumed for the proof of things that are proved subsequently. – In certain manuscripts we find this reading as well: 'the first of the three middle terms.' And the meaning of this
version would be that the first syllogisms of the first three figures, 357,1
which come to be by means of the three middle terms, are elements of demonstrations and of [subsequent] syllogisms; for the middle term is different for each figure, but the first syllogisms in each figure are the simple ones, and these are the ones that proceed by means of one middle term.

[CHAPTER 4]

1014b16 Nature is called in one sense the coming-to-be of the things that grow.

Aristotle gives five meanings of 'nature' (*phusis*). [1] He says that one sense of nature is growth and germination; for we say that what is coming to be is growing, and that for a thing to be brought [to a point where] it is coming to be is for it [to proceed] towards its nature.[65] (He gave a similar definition of nature in the *Physics* [192b12]). Hence it is usual to predicate 'growing' of plants,[66] and it is said of animals too, for every coming-to-be is a progression towards the complete form. When Aristotle speaks of 'lengthening the *u*' in *phusis*, he means [to pronounce that word] in such a way that it signifies this notion of 'growth'. Nature means [2] the substrate, i.e. the matter, for matter too is nature as the first constituent from which what comes to be has its becoming;[67] for things do not come to be from matter in the same way as they are said to come to be from privation or from the contraries (*ta enantia*), for they do not come to be from these latter as from their constituents. The word 'first' preceding 'constituent' indicates prime matter, not the proximate matter of each thing. As Aristotle said in Book 1 of the *Physics* [193a12], Antiphon said that the proof that nature is matter is the fact that if a bed had been buried and acquired the power to put forth a shoot, wood, which was its matter, would spring up from it, and not the bed, which was its form. (Aristotle himself says, 'from which a thing grows' for 'comes to be'.)

Nature means [3] the natural form; this sense is expressed by the words, 'that from which the primary movement in each naturally existing thing is present in that thing *qua* that thing' [1014b18]. (The

meaning of the statement would be clear with the addition of the word 'which': ['that from which the primary movement *which* is present', etc.].) For the principle of the natural movement of things naturally constituted belongs to each of them in virtue of its form, and this is the cause of natural movement for each of the natural bodies, if it is indeed in virtue of their form that earth is earth, fire is fire, man is man, and so each of the other animals – although the form of the latter is the soul, of the former internal inclination (*rhopê*).[68] Inasmuch as one of these things is water and another earth and another fire they have within themselves the principle of their natural movement. Aristotle adds the words, '*qua* that thing', because something that is moved in virtue of art, which is not nature, can have its principle of movement within itself, as when, for example, a doctor cures himself; but [in this case] he does not have the principle of
358,1 movement within himself *qua* ailing, but by accident. Nor does he have that principle within himself *qua* man, for it is not *qua* man that he is the one who changes [from sickness] to health, since the movements that he in fact originates *qua* man he produces in virtue of his form, i.e. of the nature within him, and this is a soul of a certain kind. The expression, '*qua* that thing', occurring in this text is equivalent to what is said about nature in the *Physics*: 'in itself and not by accident'. For there, after saying that nature is a principle of movement in that to which it primarily belongs, Aristotle adds, '[in itself] and not by accident' [192b22], expressing by that addition what he here says by the phrase, '*qua* that thing'. The words, 'the primary movement', may indicate spatial (*kata topon*) movement (for locomotion (*phora*) is the first kind of movement, as has been shown, and every natural body is capable of local movement, although not all of them can grow or be altered). Or 'the primary movement' may mean the one belonging to natural bodies themselves, to earth as earth and to an animal as animal, for a movement can be generated in such bodies through art but this kind of movement is posterior. On this interpretation, the phrase, '*qua* that thing', would explain the term, 'primary movement'.

Aristotle goes on to explain the first meaning of 'nature': what it means to grow, and to what things the notion of growth applies. He says that those things are said to grow that are nourished and increase in size through and from something else, being in contact with it either by adhering to it or by growing in union with it.[69] By 'being in contact and growing in union with', he either means the same as 'adhering to', or he intends to distinguish the two terms, in the sense that plants grow in union with the earth,[70] and hence cannot live if separated from it, whereas embryos [only] adhere to [the womb], for they live even when separated from it. He shows how growing in union with differs from [mere] contact, for those things grow in union with [another] that are continuous with that with

which they are united in growth, having a common boundary [with it], one that is the same for both of them,[71] but things that are [only] in contact have nothing in common other than the fact that they are touching. One might raise a question about plants: how it is that they are united with the earth, or, if they are not united with it, how they increase in size and are nourished through it. Perhaps it was for this reason that Aristotle stated the matter thus: 'Those things are said to grow that have their increase in size from something else, by being in contact with it and by growing in union with or by adhering to it' [1014b20], in the sense that some things increase in size through the same thing as that with which they are in contact.[72] After saying this, he goes on to state how things that are in contact differ both from those that grow together and those that adhere. He could be saying that the term 'to adhere' applies also to things that are in contact, for things that are in contact with that which they touch in such a way that they adhere to it increase in size through that thing. He makes clear how things that grow together are one, that sc. it is in respect to quantity, not quality; for the individual viscera are not qualitatively identical with the other parts of the body to which they adhere, nor the fig with the fig tree nor the cluster of grapes with the wood of the vine. Often too trees of different kinds standing in close proximity grow up together and are united and [yet] retain their own form.[73]

As a further meaning of nature Aristotle gives [4] the proximate matter of each thing, which, being a particular body in actuality and preserving its appropriate form and its own proper nature, also 359,1 receives the form of that[74] which it underlies. In this way wood is matter of the bed (for it remains wood even after becoming a bed) and bronze the matter of the statue; and this kind of matter would be that of artefacts. But Aristotle adds the words, 'of natural things' [1014b27], and to explain this addition he says, 'For it is in this way that people say that the elements of natural things too are their nature' [b32].[75] Thus Empedocles too posited that the four elements are the matter of things that come to be naturally, speculating that they are not subject to change. And those who made one of the four primary bodies, or two or three of them, the element of beings took the same position [as Empedocles], and Democritus treated the atoms in this way. This is not the case, however, with prime matter, for although it does in fact retain the same nature, still of itself it is nothing since it does not exist as a particular thing.

As a further meaning of nature Aristotle gives [5] the completion and substance of the composite in things that come to be naturally, that which comes into being through the union (*henôsis*) of matter and form, for their union is a nature. Thus too those who generate beings by a combination of certain parts call the unified product of

this combination a nature; but those who hold that no unity results when parts are combined in this way deny too that the thing thus combined has any nature. Hence Empedocles, since he did not believe that there is any union of parts, said that nothing has a nature, i.e. a unity, in the sense that one particular thing comes to be out of the combination of parts and [thus] takes on a form, but that there is 'only a mixture and a dissolution of the parts that are mixed',[76] but that men nevertheless call this mixture too 'nature' because they think that the parts are actually united in the mixture.

After pointing out that this kind of substance and completion is called 'nature', Aristotle says that for this reason, [in the case of] things that are and come to be naturally, although in many instances that from which they are completed and come to be already exists, we do not say that these things have their nature unless they have also acquired their appropriate form and completed state. Since he has said that the composite too is nature, he adds that the composite would more properly be said [to exist] *by* nature,[77] but that nature [in the proper sense] is the primary matter[78] (his example is water, if this were to be the matter of bronze), and the proximate matter (of which bronze is in turn the example), and the form, i.e. the substance, in virtue of which each thing has its being; it was these that he first mentioned. And thus 'nature' would have the three meanings he has just added. He calls the form, 'the end of the process of becoming', because in things that come to be naturally the form contains the substance [understood] in relation to the end.[79] He says that by a transfer of meaning, [6] every substance is also said to be nature from its form. For since the form, being substance of the things that are naturally constituted, is their nature (for it is in virtue of the form that they have their being), the result is that in all cases people speak of the substance of each thing, that in virtue of which it exists as the thing that it is, as its nature. For this reason they call 'nature' even the form that comes to be through art, because this form is substance of artefacts. For each of these artefacts too has a kind of substance and existence (*huparxis*) appropriate to it which is also called 'nature' since it is form of these things; hence they are also said to have their appropriate substance.

360,1 After these remarks about nature, Aristotle adds: 'Thus of the senses that have been mentioned, the nature that is primary and that is said to be such in the proper sense is the substance of those things that have a beginning of movement in themselves *qua* themselves' [1015a13], just as he said in the *Physics* [193b3ff.] that nature in the proper sense is the enmattered (*enulos*) form, from which the composite has the beginning of its movement. As for matter and the other things of which 'nature' is also predicated, he says that they are called nature by reference to this fundamental sense of the term: matter

because it is receptive of the form, and processes of becoming and growth because they are movements proceeding from this [source]; for growing things grow because of the form and the power that is in them. He adds, 'and nature in this sense is the beginning of the movement of natural things, being present in them in some way'. To explain how it is present, he adds, 'either potentially or actually' – potentially, as the soul is in the ejected semen; actually, [as the soul is present] when there is finally a living thing. The beginning of movement for all natural things is the enmattered form;[80] this latter, then, is rightly [called] nature in the primary sense, for nature was the beginning of movement.[81] It should be noted, however, that when Aristotle distinguishes each of the things that is expressed in various ways, he [treats it] not as equivocal, but as derived from one thing and related to one thing.

[CHAPTER 5]

> **1015a20** That is said to be necessary without which, as a contributing cause, it is impossible to live.

Aristotle distinguishes five senses[82] of 'the necessary' (*to anankaion*). [1] That without which a thing cannot exist because it is a contributing cause (*sunaition*)[83] of that thing's existence. In this way food and breathing are necessary for animals, for although the soul is the cause of life, these things are causes that contribute to living. The necessary means [2] that without which some aspect of a thing's good or well-being cannot be achieved, or evil got rid of, as the drinking of medicine is said to be necessary, not absolutely so, but in order to get rid of the disease. So too study is necessary to acquire scientific knowledge, and the exercise of virtuous habits to become good, and sailing to Aegina to get one's money, if it cannot be obtained in another way.[84] The necessary means [3] the compulsory (*biaios*) and the involuntary (*akousios*), for the compulsory and what goes counter to choice is called necessary. Thus one is said to go to some place out of necessity when he is compelled to go either because he is in chains or subject to some harsh condition of this sort, or because [his ship is driven there] by the winds. For whatever actions we perform under compulsion are necessary actions, and we do them out of necessity. Hence necessary actions of this sort are also painful, as Evenus says: 'For everything necessary is by its nature irksome'; and compulsion is a kind of necessity, as Sophocles says, 'But compulsion necessitated my doing this' [*Electr.* 256]. (And Aristotle cites Evenus and Sophocles as witnesses to the fact that the compulsory is called necessary.) And it is clear that necessity and compulsion are not open to persua- 361,1

sion, for [things done under compulsion] are simply not within our control (*eph' hêmin*); hence Aristotle also says that necessity is 'contrary to the movement that is according to choice and reasoning (*logismos*)' [1052a32]. For some things are within our control, but necessity does away with what is in our control, for it is outside us and in the hands of others.

The necessary means [4] what is eternal (*aïdios*) and immutable and that cannot be in another way than it is; Aristotle says that other things are called necessary by derivation from this meaning, for that which cannot be in another way than it is, is necessary in the primary sense. [His definition applies] without qualification to eternal things, but as a consequence there seems to be something of this sort in the other things too that are called necessary. And in fact what is done under compulsion is necessary at the moment when it is impossible for a person to act according to his own impulse (*hormê*) and choice because he is being compelled and persuasion is futile – [if one is acting out of] obedience he can have recourse to persuasion, but when he is being compelled he cannot but act accordingly. And that which is a contributing cause of the existence or good of something is necessary because it is impossible for the thing to be or to be in a good [state] apart from it; and these three types of necessity were those first mentioned. But to the four types of necessity that have now been stated Aristotle adds [5] that relating to demonstrations; for demonstrations are necessary because what has been demonstrated cannot be otherwise than it is, if there has been demonstration in the primary and unqualified sense.[85] He says that the causes of the fact that what has been demonstrated is necessary are 'the first [propositions]', i.e. the [first and indemonstrable] premises – if, that is, the premises by means of which the syllogism and demonstration proceed cannot be otherwise than they are.

Now that Aristotle has shown that all instances of necessity can be brought under the necessary in the sense of that which cannot be otherwise than it is, he distinguishes these instances, saying that some of the things that are necessary have another thing as cause of their being necessary, as in the case of compulsory acts and demonstrations; but that others do not have something else as cause of their necessity, but are themselves the cause of necessity for other things, as are the first and immediate premises. But eternal things too are also necessary in this way, for they have no cause extrinsic to them and they are of necessity causes of being for other things too; for all things that are naturally constituted owe to the gods the fact that they are immediately necessary because they have a cause of their being that is eternal.[86] Moreover, that which cannot either be or be in a good state without something else[87] has from that other of necessity the cause both of its being and of its well-being. Aristotle

says, then, that the other things that are necessary have something other than themselves as cause of their necessity; for some other thing is cause both in the case of things that cannot exist without something else (for food is other than the one being nourished), and in the case of things whose good can neither be nor come to be apart from that other thing.[88] It is obvious, moreover, that the cause [of the necessity] of actions done under compulsion is other than the actions themselves, and that the cause of the necessity of the conclusion is other than the conclusion. But only the eternal beings, those that are divine, do not have another thing as cause of their eternal being, and it is because of them that the things naturally constituted are and come to be of necessity.

362,1 Having dealt with the question about the nature of the necessary (for it is that which cannot be otherwise than it is), Aristotle says that what is necessary in the primary and strict sense is the simple (*haplous*). The reason he gives is that the simple cannot be otherwise than it is; for what is not simple has more states than one, but what has more states than one can also be otherwise than it is. Assuming therefore [that this point is established], he goes on to say that if, among the things that exist, there are certain simple and immutable beings, there is nothing compulsory or contrary to their nature in them (for then they could be otherwise than they are), but that they exist of necessity in the strict sense. According to Aristotle, the first causes are things of this sort; and he adds this remark so that when we predicate 'necessary' of them, no one might think us to be predicating necessity in the sense of what is compulsory or contrary to nature.

[CHAPTER 6]

1015b16 Things are said to be one either by accident [or in themselves].

Aristotle says that 'one' (*to hen*) means [1] that which is one by accident, [2] that which is one in itself; and [he distinguishes] three senses of accidental unity. [i] The accidental [attribute] and that of which it is an accident are said to be one, as Coriscus and the musical, if Coriscus should happen to be musical; for to say, 'Coriscus and musical are one', is the same as saying, 'The musical belongs to Coriscus by accident', and 'Coriscus is musical'. [ii] He says that the musical and the just are an accidental unity, and also [iii] musical Coriscus and just Coriscus.

After these distinctions, Aristotle goes on to explain the way in which each of these unities is accidental. [ii] The just and the musical

are one because they are accidents of one substance, for it is by accident that the musical and the just are one because they both happen to belong to some one thing. [i] The musical and Coriscus are one because one of the two parts of the composite, [musical Coriscus,] is an accident of the other part, for the musical is an accident of Coriscus. And in a way somewhat similar to this, he says, 'Coriscus is musical Coriscus' is one, and there is [only] one accidental proposition,[89] because in this formula, the second part of the whole formula belongs to the other part; for to be musical Coriscus belongs to Coriscus. Aristotle's own statement is, 'One of the parts of the formula is an accident of the other part'; he says that to be musical is an accident of Coriscus, thus removing the term 'Coriscus' from the predicate;[90] for because the musical is an accident of Coriscus, it follows that the whole proposition, 'Coriscus is musical Coriscus', [expresses an accident of Coriscus]. He says, 'in a somewhat similar way', because there is a difference in the wording and the expression; for it was said above that the musical Coriscus is one, while here the statement is that the musical Coriscus [is one] with Coriscus. [iii] The musical Coriscus is, he says, one with the just Coriscus because one
363,1 part of each of them is an accident of the same thing, which is identical in both of them. For both the musical and the just, although each of them is a part of its own proposition, are accidents of Coriscus, the term[91] that was the same in both propositions. He says that a similar instance of accidental unity results even if the accident is not predicated of Coriscus or some other individual but of a species or genus or of universals in general – if, e.g., man and musical man are said to be the same; for these are one either because they happen to belong to man, which is one substance,[92] or because both the musical and man happen to belong to some one individual substance such as Coriscus, as 'the musical just' was also said to be one. The two [predicates], man and musical, do not however belong to Coriscus in the same way, but the former belongs to him as his form and is included in his substance (for it is in this way that he is man), whereas the latter belongs to him as a state (*hexis*) (such is the musical), or as an affection (*pathos*) or in general as some kind of accident, such as pale, snub-nosed or the like. That is why this predication, 'Coriscus is musical', states what Coriscus is *like* rather [than what he *is*].[93]

Aristotle says that the things called accidentally one are said to be such in these [three] ways, but that of the things called one [2] in themselves some are said to be such [i] because they are continuous (*sunekhês*). He uses the term 'continuous' in a somewhat general sense [to include] things that are held together in any way by something, as a bundle is held together by a rope; and similarly he calls 'continuous' things glued together into one, such as books. Other things are continuous because they have a common boundary,[94] as

those that are continuous in the primary sense; a line is one in this way, for it is continuous even if it is not straight, but if some part of it is bent. In this way the parts of the body, e.g. leg and arm, are continuous. And he says that among continuous things themselves those that are naturally continuous are more properly one than those that are artificially so: the arm of a man, for instance, than that of a statue; for these [natural parts] are more unified and grow together and have a mutual awareness (*sunaisthêsis*) of one another.[95]

After saying that naturally continuous things are more properly one than artefacts, Aristotle gives a definition of the continuous that he uses to explain 'one'. '[The continuous is said to be] that whose movement is one in itself and cannot be otherwise' [1016a5]. He adds what this one movement is: 'It is one when it is indivisible in respect to time.' He means that those things are continuous in the strict and primary sense whose movement, the movement that they initiate by themselves, is one and of necessity one, i.e. in which all [the parts] move and it is impossible for one part to move while another part is at rest.[96] Continuous things that are not bent are of this kind, for their movement is indivisible in respect to time. After stating that things having one movement are called continuous, Aristotle next says what things have one movement, and in what being a continuum of that type consists. He says that in general those things are continuous in themselves and in the primary sense that do not possess their unity [merely] through contact, as things [held together] by a rope or glue, but that are joined together by a common boundary;[97] for pieces of wood in contact with one another are not called 364,1
either [one piece of] wood or one body in the proper sense, or one thing at all. He says, then, that although in general what is continuous is called one in the primary sense[98] even if it is not straight but bent, those continuous things are even more properly one that are straight and are not bent; for the shin and thigh are more [properly] one in themselves than the whole leg, for the leg is not straight, so that its movement need not be one. But this is not possible in the case of the thigh or shin, for one of their parts cannot be moving while another is not, for then there would be a flexing.[99] He says that for the same reason the straight line is more [properly] one than the bent; the latter is bent in such a way that it has an angle, and is both one and not one. But the line of the circle is one, for it cannot move in [only one] part while retaining the same figure.[100] He states why a line with an angle is not one in the unqualified sense: because [it can move in such a way that] the whole line does not move simultaneously, whereas it is impossible for part of a straight line to move in separation from the whole line, for then the line would be bent; but no part of a straight line that has magnitude can of itself either move or be at rest apart from the whole line. To the term 'part' he adds the words,

'that has magnitude', because some people might call the terminus of a straight line a 'part' of the line which can remain at rest while the whole line is moving.[101]

After this discussion of that which is one as continuous, Aristotle says there is another way in which things are called one [in themselves]: those [ii] whose substrate is undifferentiated in kind; this he explains in the words, 'of things whose kind is indivisible by sense perception' [1016a17-19]. By 'indivisible' (*adiairetos*) he means what is not divided into different perceptible objects, for it is not necessary that the substrate of these things should be *quantitatively* indivisible.[102] (Examples of different perceptible objects are the sweet and the sour or the white and the grey.) Perceptible objects that are of the same kind as one another would be one in this way. He says that not only are those things one whose primary substrate is indivisible, but those too whose ultimate substrate is such. By 'primary substrate' he means the proximate one, if e.g. it is wine (for the substrate of which he is speaking is the perceptible substance). If then [this proximate substrate] were to be wine, these things[103] are one in virtue of this substrate, for they are one in kind; and similarly [if the proximate substrate] were to be water. But things having [the same] ultimate substrate are one, not because they are not different perceptible objects, but because they have come to be from some one ultimate perceptible body which is indivisible in kind; for these things are one not as being [themselves] of the same kind, but because they have the same kind of ultimate substrate. In this way all juices are said to be one because they have their being from some one body [that is] their ultimate substrate, either water or air. – In adding the phrase, 'in relation to the end', to the term, 'the final (*teleutaios*) [substrate]', Aristotle either means the same as, 'the final substrate *from* the end', i.e. the one that stands at the greatest distance from it; or by 'the final substrate in relation to the end', [he means] the one that is ultimate and an end, which no longer serves as substrate to something else. What is final [in this sense] is the wine and the oil, but what is first[104] is the perceptible substrate from which these things come to be; in this way things from the same matter, i.e. the same substrate, are one, if that substrate is perceptible.[105]

Aristotle says that those things are called one [in themselves] [iii] whose genus is one and the same; for although things from the same genus differ and are divided into opposite classes[106] by reason of opposed differentiae, still they are said to be one through their genus, which is the same; and things said to be one by their genus are one in this way. Such things are called one, he says, in somewhat the same way as those previously mentioned, whose ultimate substrate and matter, being a perceptible body, was the same; for those things too, although differing from one another, were one by reference to

their substrate, which was one and indivisible. (He could also be saying simply that things from the same matter are one in the same way as those [that are one] because they have one genus.)[107] He says 'in somewhat the same way', because [things that are generically one] are not similar in every respect [to those having the same substrate], but only inasmuch as the unity of both the latter and the former results from their being referred to something else. The latter have the same substrate, the former the same predicate; and the substrate is indivisible in kind but not in quantity, whereas the genus, on the contrary, is indivisible in quantity but divisible into species.[108] Aristotle says, then, that things under the same proximate genus are sometimes said to be identical with one another by reference to their genus even though they are divided into opposed classes by reason of the opposed differentiae in the genus; but that sometimes things under one genus are said to be identical with one another not by reference to the proximate genus, as the ones just mentioned, but by reference to a higher genus; and he states to what things this case applies. For when there are certain subordinate genera, and the species under consideration are those of the lower genus, species which are no longer proximate to the first genus but to the one under it, [these species], being final and ultimate, are said to be one not by reference to their proximate genus, but by reference to the higher one; for the term 'above' indicates this [higher] genus, as do the words, 'higher than these'.[109] 'Living thing', for instance, is a genus and 'bird' is under it, and 'eagle' and 'hawk' are species of bird; eagle and hawk are therefore said to be identical not inasmuch as they are birds (for inasmuch as they are birds, they differ from one another), but they are identical and one *qua* living thing, by virtue of their participation (*metalêpsis*) in the higher genus. In this way, scalene and equilateral triangles are not one as triangles, but as figures. For the words,[110] 'the [genus] higher than these', indicate the genus that is above the proximate genera, and things that are generically identical in this way would be such by reference not to the proximate but to the higher genus; they possess their unity in a way analogous to that in which things have their unity not from their proximate but from their ultimate matter, i.e. substrate. For as these latter had their unity by reference to their ultimate underlying matter, not by reference to their proximate matter, so the things now being discussed are generically identical not by their proximate but by their higher predicate.

Aristotle has explained why these things are said to be identical by reference to the higher genus but are not one by reference to the proximate genus; for things under a genus are identical to one another by reference to that genus if they do not differ from one another by reason of the differentiae of that genus; but if they *do* differ through the differentiae of the genus they are not identical by

reference to it. The first instances of generic unity that he mentioned were not of the kind just now described. Thus triangles [of different kinds] – the equilateral, the scalene and the isosceles – are [geomet-
366,1 rical] figures identical to one another because they do not differ through the differentiae of figure (for all triangles come under the differentia 'rectilinear'); but since they differ through the differentiae of triangle, they are not similarly identical [as] triangles. And eagle and raven do not differ through the differentiae of 'living thing', for all birds come under 'winged', a differentia of living thing, hence are identical as living things; but because [eagle and raven] differ through the differentiae of 'bird', they are not the same as birds. For this reason both the male and the female are similarly 'man' because they do not differ from each other through the differentiae of man.

Having shown what things are generically one, Aristotle adds a meaning of 'one [in itself]' [iv] according to the definition, i.e. the formula that states the essence,[111] for things that are different and separate from one another are one if their formula and definition are the same. After saying, 'things whose formula, the one stating the essence, is indivisible relative to another formula' [1016a33], he adds: 'for in itself every formula is divisible.' He says this because every formula is composed of a number of particulars into which it is also divided. Thus even things separate from one another and different because of certain accidents are one when the formulae that manifest their essence are the same. By this statement Aristotle explains what things are specifically one and identical; and the words, 'just as, in the case of plane figures, the formula of their form [is one]', indicate that in this way the formula of these figures is one, although the figures are separate from one another and differ because of certain accidents. For things that differ from one another only quantitatively are of this sort;[112] he refers to them in the words, 'that which has increased in size and is diminishing [is one]'. Or [these words may mean that], just as in the case of plane figures, each thing keeps the same essential formula whether it is larger or smaller; for both a larger and a smaller triangle are equally triangle and one if they have the same form.

In addition to these [types of unity], Aristotle says that those things are universally and in the primary sense one, 'whose thought that thinks the essence', i.e. the substance, 'is indivisible' [1016b1];[113] for things that are inseparable in all respects, and that do not admit of any separation either in time or place or formula, are one in the highest degree, and of these things, most of all those that are substances. He may mean that what is numerically one and this particular thing and a subject is one in the primary sense. For some of the things that belong to the same genus or species are separated from one another by both time and place, and those that have different

names,[114] although they are not separated by place or time, [are separated] at least by their formula, for there is one formula for the ascent and another for the descent, even though their substrate is one and inseparable.[115] But what is numerically one is inseparable in all respects, and most of all what is one in substance; indeed, each of the other things having numerical unity have it from substance.[116] Or [he may mean that] on the one hand[117] things under the [same] genus have generic unity although they differ from one another specifically by reason of their opposed differentiae, and that things under the [same] species are specifically identical and one even though they are separated from one another and different, not of course in their essence (*ousia*) but through certain accidents. But on the other hand the genus itself taken in general, e.g. 'animal', since it is one and identical with itself and not with another thing, would be numerically identical with itself and similarly one, i.e. the genus that is not divided by the differentiae of 'man'.[118] (What Aristotle says in this last statement is what he said shortly before.)[119] To these remarks he adds that in general each thing is said to be one in virtue of that by reference to which[120] it is without division or difference in some respect, for all things that do not differ from one another are identical to one another inasmuch as they do not differ. For 'man' [as] undivided in reference to man is one[121] (for if [man] is not divided into men it is one), and similarly 'animal', if it is not divided inasmuch as it is animal, is one, and the same argument applies to other cases.

After these parenthetical remarks, Aristotle returns [to his main point], showing that one in the primary sense [means] what is one in virtue of substance, for everything else is called one in virtue of some accident. For [accidental unity results] either from *producing* some identical effect,[122] as certain things of like disposition are said to be mutually one – honey, for example, is [the same] as honey or in general sweet as sweet and hot as hot; or from *having* an identical [attribute]: thus [one] musician [is the same as another] musician, or [one] pale man as [another] pale man, for [both musicians and both pale men are] the same because they have an identical [attribute]; or from *being affected* in the same way, as things being heated or chilled or in general those that are undergoing some identical affection. And other things [are accidentally one] because they are *related to* something [one], as we say that all people living towards the east are on the right side of the world and on the right hand, and that by reference to this [location] they have some one thing in common, while those living towards the west are in turn on the left side; or [we say that] those who are on the right side of one thing [are one], as also those who are twice as numerous, or that the sons of one father [are one]. For in virtue of their common participation in some [one] of those [accidents], things to which that accident belongs have unity. But things

that are one in the primary sense are those, 'whose substance is one' [1016b6]. As Aristotle says, the substance of things is one either 'in continuity': for the continuous is one [simply] inasmuch as it is that sort of thing, as a line is one and a plane is one and a solid is one; or 'in form': in this way triangle and man are said to be one, for things that have one form are one in substance, as are men (for men are alike in their form), and similarly all things that are alike in form [are one]; or 'in formula'. By things that are one in formula he might mean those that have more than one name (*poluônuma*), for they too are one in respect to their substance, for there is one formula that signifies their substance.[123] Or perhaps Aristotle says, 'either in form or in formula', as if these terms had the same meaning. An indication that he is speaking in this way is the fact that when he is stating what things are more than one he mentions those that are opposed to continuous things and those [that are not one] in form; for he says: '[We count] as more than one either things that are not continuous or those whose form is not one' [1016b10]. He shows that each of the latter is a single instance [of plurality][124] from the fact that we count as more than one things that are not continuous with one another, for we say that there are many men because they are separated from one another although they have the same form; but we also say that things unlike one another in form are many things, as horse, dog and man. He does not, however, add how things with different formulae[125] are also more than one.

368,1 To the ways already stated in which things are one in the primary sense Aristotle adds one as a whole; for in many cases we do not call a thing one even if it is continuous unless it is also a whole and has received its form. For something assembled at random is not one although it contains all its parts, but only if its parts are so arranged that they possess the appropriate form, as Aristotle shows clearly by his example of a shoe. He says too that for this reason the line of the circle is most of all one, because in addition to being continuous it is also complete and whole, for this line, since it is complete, does not admit any sort of addition. – There seems to be a lacuna in the text at this point, for Aristotle begins by saying, '*Since* there is a sense in which we call anything whatever one if it is a quantity' [1016b11],[126] but adds nothing further; the words omitted are, 'this too would be a sense of one', or something of that sort. Indeed, if what he says about the circle could be read thus: '*for this reason* the line of the circle is of [all] lines one to the greatest degree' [the sequence would be clear],[127] but he himself does not state the matter in this way. But the text would be clear, and would ensure the [proper] sequence, if, instead of '*Since* there is a sense', it read, '*Again*, there is a sense'.

Aristotle makes this further point in addition to what he has already said: that to be one is to be the beginning of number,[128] for in

each [genus][129] the first measure, that which is also one, is its beginning. In number the unit is this kind of measure, in another [genus] something else, whatever is the first measure in it; for the 'one' [i.e. the first] is not the same in all [genera]. He states clearly what the first measure is in each case: 'For that by which we first know a thing[130] is the first measure of each genus' [1016b19]. By this statement[131] he also points out that [the first measure] of a thing is its beginning as something that can be known; for that through which a thing first comes to be known is its beginning, so that 'one' is the beginning of knowledge and of the thing known – for men are first known from one man, and horses from one horse, and so in each genus things are known from something that is a member of that genus. Thus in the musical scale it is the quarter-tone, for all the musical intervals are thought to be measured by this smallest perceptible interval. And in speech, the vowel or consonant is one element, for every spoken sound made up of letters is measured by those smallest [elements]. In weight, again, there is something else that is first and one through the multiplication and combination of which every weight is known. Similarly there is something first in movement too, known and assumed, by which all movement is known, for although there is no movement that is naturally first,[132] we nevertheless mark off the stade[133] or some other length by which we measure the whole movement. But in all cases and everywhere, Aristotle says, 'that which is one is indivisible either in quantity or in species' [1016b23]. Therefore, what is indivisible in quantity in all dimensions and is also without position is a unit; if it is indivisible in all dimensions but has position, it is a point; if it is divisible in one dimension (in respect to length), it is a line; if it is divisible in two dimensions, it is a plane; if it is divisible in all, i.e. three dimensions (for there are only three dimensions), it is a solid. But the one 'man' and the one 'horse' are 369,1
indivisible in species, [and so] in the case of each species. He does not add what is one in number because he assumes that it is evident.[134]

Aristotle next points out an additional division of one, a division in common use that is included in what has previously been said,[135] for some things are one in number, others in species, others in genus, others by analogy. He says that those things are numerically one 'whose matter is one', using 'matter' in the more general sense of substrate; for things that are one in substrate are numerically one, since numerical unity is found both in the line and in the unit, which have no matter – indeed, even the term 'substrate' could be applied to them [only] in a somewhat general way. Things are one in species, he says, 'whose formula is one'. There is one formula for all things coming under the same species; for the formula of the different species of a genus is not the same, but it is the same for things coming under the indivisible species.[136] He says that those things are one in genus,

'that have the same figure of category', i.e. those of which one of the supreme genera, i.e. one category, is predicated, for all these are one in genus. The one by analogy he defines as that which is related [to another] 'as a third thing is to a fourth';[137] for when one thing is related to another as a third is to a fourth they are one by analogy because of this kind of similarity. It is also easy to understand what Aristotle adds in reference to things [that are one in these ways]: that those possessing the later kind of unity always possess the prior kinds as well,[138] but not *vice versa*, for things that are numerically one are also one in species and genus, [while those that are generically or specifically one are not all one in number].[139] ...[140] He says that things one in genus also possess unity by analogy, for things in the same genus are analogous: for instance, as man is to man horse is to horse; as man is animal, horse is animal.[141] And things in the same species [possess] an analogous [unity]. But things that are one by analogy are not also generically one, for things are analogously one [in this way:] as the spring is to the river, so the heart is to the animal; but certainly neither spring and heart nor river and animal are generically the same.

After his discussion of one, Aristotle says, 'It is obvious that "many" (*ta polla*) will be spoken of in ways opposite to what is one' [1017a3]. For things that are not continuous but divided are many, and those too whose matter is not indivisible but is divided and different in kind. The matter in question is 'either the first or the final': first, if one thing were, by reference to its substrate, wine and another oil (for these [two] have different forms).[142] The ultimate matter would be the ultimate substrate, different in kind, from which each thing has originated: for example, one thing might be from water [as] its ultimate substrate, as are those that can be melted, while another might be from earth or something else, as [various kinds of] incense.[143] Other things [are many] because they have different formulae,[144] as those that are other in form; and these things would be opposed to those whose formula and definition is one. And in the case of the other meanings of 'one' that have been given, it is possible to find opposite senses of 'many', just as in the instances that have been stated; for there are things that are generically many, those that have
370,1 no common genus; moreover, things of which there is no indivisible thought are many, and things separated from one another are many, inasmuch as they are separated.

[CHAPTER 7]

1017a7 Being means either that which *is* in an accidental way, or that which *is* essentially (*kath' hauto*).[145]

As he did in the case of 'one' [ch. 6], Aristotle first divides 'being' (*to on*) into what *is* [1] in an accidental sense, and what *is* [2] essentially and in the primary sense. On the basis of this distinction he sets forth, by way of examples, the ways in which something is said to be in an accidental sense, using the term 'is' rather than 'being', since 'is' has been formed from 'being'.[146] He says, then, that in one case we predicate 'being' and 'to be'[147] accidentally if we say, 'The just man is musical' (as this predication was an instance of accidental unity too); in another case if we say, 'The man is musical'; in another case if we say, 'The musical is a man.' It was pointed out previously that these are also the ways in which the accidental senses of 'one' are expressed.

Aristotle goes on to show how these instances of accidental being differ, and why it is that in all cases of this sort 'being' and 'to be' are expressed in an accidental way.[148] For just as when we predicate several accidents of a thing, we say that that predication is accidentally one because the subject in which these attributes coexist is one, so the attributes belonging in this way to a substance are also called being (*on*) in an accidental sense. For as [the several attributes] are accidentally one because they are accidents of one thing, so too they are accidentally being because they are accidents of substantial being and belong to it; and those things that have a subject in the proper sense, whether they are one or more than one, would be accidents of the subject if they were not properly that subject.[149] For what is not properly a thing is that thing [only] in an accidental way, since no substance is, of itself, any of those attributes that are not included in its being (*to einai*)[150] but are its accidents. For this reason the substance that supports these accidents is itself, in an accidental way, the attributes that are thus predicated of it, and its accidents too exist in an accidental way because they do not exist in the proper sense nor of themselves, but possess their being from that thing of which they are accidents. – 'Speaking in much the same way as if' they[151] were to say that, 'the musician builds a house' [1017a10], but not that he *is* a builder. Aristotle [puts the matter thus] so that, by taking the accident apart from [the verb] 'to be' and pointing out how this accident is expressed, he might show that the proposition, 'The builder *is* musical' is equivalent to this proposition, ['The musician builds a house.'][152] Therefore, as the builder is musical, so by conversion the musician is a builder. For it makes no difference what form the proposition takes, because the man who happens to be a builder

is also the one who happens to be a musician; for whenever a thing is truly said to be *this*,[153] it is true that what is predicated of it belongs to it as an accident. As, then, this [principle] applies in other cases, so it holds in the cases that have been mentioned. For if we say that the man is musical or that the musician is a man, or again that the musician is pale or that he who is pale is musical, we make the latter statement because both attributes are accidents of the same thing, and the man is both these attributes, pale and musical, in an accidental way. And we make the first statement, the man is musical, because the musical is an accident of the man, and is being (*on*) in this way, namely as an accident of that which [truly] *is*. It would itself be being in the proper sense if it were a consequence of the man's essence (*ousia*).[154] But we say that the musical[155] is a man not in the sense that man belongs to the musical, but that the musical belongs to man; we are expressing the predication in an unnatural way when we say that the musical is man.[156]

After this exposition of the three modes of accidental [predication], Aristotle points out how these modes differ. [Things are said to be in an accidental sense] either because both attributes belong to the thing which exists, i.e. substance; or because what is predicated belongs as an accident to the subject, which is a substance;[157] or because what is predicated is itself that to which the thing of which it is predicated belongs, as in those unnatural propositions in which substance is predicated of accident. He notes further that, in the case of propositions such as 'The not-pale *is*', [the verb] 'to be' is used in an accidental sense, much as it is in the instances that have been mentioned; for the not-pale is said to *be* in an accidental sense because that thing which happens to be not-pale exists.

Having discussed accidental being, Aristotle deals next [2] with essential being. He says that essential being has just as many senses as there are figures and genera of categories.[158] By 'figures of categories' he means the ten categories; hence he is saying that essential being has ten senses, and he explains why this is so. For [the verb] 'to be' stationed next to each of the things that exist signifies the same as that with which it is aligned,[159] since being, [which is] equivocal,[160] signifies the existence (*huparxis*) appropriate to each thing.[161] But if there are ten differences by reference to the supreme genera, 'being' and 'to be' will also have ten meanings. For when aligned with substance, [the verb] 'to be' signifies substantial (*ousiôdês*) existence; when aligned with quantity or quality, it signifies the existence of something as quantified or qualified, and similarly in the case of the other genera. A further consequence is that whenever any of these genera is predicated of something as part of its essence (*en têi ousiai*)[162] because it is either its genus or its differentia or its definition,[163] the 'is' attached to such predicates[164] will be predicated

essentially (*kath' hauto*). To show that 'is' signifies the nature of that to which it is attached, Aristotle adds that to say, 'A man *is* regaining his health' signifies nothing other than, 'A man regains his health'; that is, the 'is' which is attached to health signifies only the existence of health;[165] thus too 'A man *is* walking' or 'cutting' [signifies only the existence] of walking or cutting, and so in all cases. For as Aristotle said in *On Interpretation*, [the verb 'to be'] 'by itself is nothing, but implies some combination' that cannot be 'without its components' [16b24].

Furthermore, he continues, 'is' and 'to be' and 'being' signify [3] truth, but 'not to be' and 'not-being' signify falsehood; for we say that what is true *is* and is being, but that a falsehood *is not* and is not-being, and this alike in both affirmation and negation. For one who says 'Socrates *is* musical', asserts that the statement is true; he is using 'is' in reference to the truth.[166] Similarly, one who says, 'Socrates *is* not-pale', predicating not-pale negatively,[167] again asserts that the statement, 'Socrates is not-pale' is true. And thus truth is in affirmation but falsehood in negation, as when a person says that the diagonal *is not* commensurable with the side, for by joining 'diagonal commensurable with the side' to 'is not', he is asserting that it is false to say that it is. For one who asserts the affirmation says that the verb 'to be' is true, whereas one who asserts the negation denies the verb 'to be' on the ground that it is false.

Aristotle says that in addition to the meanings that have been mentioned, 'to be' and 'being' also signify [4] that which is potentially and that which is in actuality.[168] (If 'can be spoken of' were written *before* 'potentially' [in Aristotle's text],[169] he would mean that it is possible to speak of potential being because it can rightly be called ['being'] although it does not yet exist.) 'Being signifies those of the cases mentioned that are in actuality' [1017b1-2]; of those, that is, that can also be said to be potentially. For he who is actually seeing and he who is capable of seeing (e.g. one who is asleep) are alike said to be 'seeing', since 'is' is predicated both of the former and of the latter. So too both he who is in an active state with respect to knowledge and he who is capable of knowing are said to know: 'to know' is the equivalent of 'to be a knower', and the same explanation applies to 'being at rest'. He says that in the case of substances too, both potential and actual being are signified by the verb 'to be'. By 'substances' he means the underlying things themselves in contrast to the things previously mentioned, those spoken of in reference to activities and states and being at rest, which are accidents of substances. For when, he says, someone asserts that Hermes is in the marble, he means that Hermes can come to be out of the marble. Moreover, the half of the line is potentially in the line that has not been divided – he includes line too among substances because some

people held that opinion. Similarly [grain] that is not yet ripe is potentially corn. – After citing these instances, Aristotle adds: 'but when a thing is potential and when it is not must be determined elsewhere' [1017b8], for potentiality cannot be predicated in reference to any and every thing that is, but [only] in reference to that which already is and which is capable of changing immediately into, or receiving, that thing to which it is said to be in potency. For a person will be quite correct in calling the already-existing marble 'the potential Hermes', but not if he says this of the earth and water from which the marble is formed. And the infant is potentially a knower, but not the menses, and the puppy is potentially seeing, but not while still in the womb. Aristotle will deal with accidental being and with being as true in the book following this one; with essential being in Books 7 and 8; with potential and actual being in Book 9.

[CHAPTER 8]

373,1 **1017b10** By substance we mean both simple bodies [... and bodies in general and the things constituted from them].

Aristotle has divided being, taken in its primary sense,[170] into the categories, and he shows how many meanings each of these has. First he deals with 'substance' (*ousia*), dividing it [1] into bodies, for bodies are substances, and in general all things that are from a body or that have a body are substances, e.g. animals. He says that divine things (*daimonia*) too are substances in this way – he speaks of 'divine things' either in the sense of those who assert that there are inferior divine beings (*daimones*), and means that these beings too are substances of this kind, if they are in fact composed of soul and body; or by 'divine things' he means the divine [celestial bodies], for the stars and their parts are things of this sort.[171] [When he refers here] to the parts of animals [1017b12] he does not mean soul and body, but parts of the body such as hand or foot, for he deals later with substance in the sense of form. He explains why all things of this kind are substances: 'because they are not said of a subject', i.e. because they are not such as to have their being in a subject but, on the contrary, are subjects of other things; for the nature of accidents has its being in them. Individual (*atomos*) substances are of this sort, for the accidents are in them; hence these substances are neither predicated of nor in a subject, but the other things are predicated of them and are in them.

He says that in another way substance means [2], 'whatever constituent of those things that are not predicated of a subject is the cause of their being' [1017b15]. By this he means whatever things are

constituents of the substances mentioned above (these latter he now describes as 'not predicated of a subject', for it is accidents that are so predicated). Any constituents of substances, then, that are causes of their being what they are, are themselves also said to be substances. He is speaking of the forms of things constituted by nature. These are the natural and enmattered forms such as the soul in living things, for it is through the soul that they are alive. And in the case of natural bodies, the form is the cause of each one's being the thing that it is.

He says that substance also means [3] those constituent parts that, by delimiting certain things signify that they are these particular things (*tode ti*), by whose destruction the whole is also destroyed. He means that in this way the limits (*perata*) of bodies are themselves said to be substances. He calls the limits 'parts' rather loosely, as if they were parts of the dimensions of bodies, but the surface is not part of a body in the sense that the body can be resolved into it; it is however part of the formula of body and thus defines it.[172] Such too is the relation of line to surface, for the line, being a limit of the surface, encloses it within boundaries; if the surface were not bounded by its limit it would be without limit (*a-peiros*) and not something particular.[173] For the limit of each body or magnitude, because it separates that body from others, is the cause of its being the particular body that it is by virtue of its own outline.[174] 374,1

By the phrase 'in such things' [1017b15][175] Aristotle might mean in bodies, which can exist by themselves and can have limits; in fact the line, although more proximate to the surface, also belongs to the body, for there would be no surface without it. Or 'in such things' could mean either in those whose nature it is to have limits and to be bounded by them; or in substances, for in the opinion of some people mathematical objects too are substances. – He says that the limits 'signify this particular thing' [1017b18] because the external forms (*morphê*)[176] of bodies are determined by their boundaries, by reference to which bodies are said to be these particular ones, such as cubes or spheres. Perhaps, however, bodies are not said to be 'these' but 'of this kind' by reference to their limits; but Aristotle does say that surface and line signify 'this thing', for in addition to being limits they seem to indicate some nature and essence (*ousia*) peculiar [to them]. Or 'this thing' might mean that which has fixed boundaries, for bodies owe the fact that they are such to their limits.[177] – He adds, 'by whose destruction the whole' in which each of these parts is 'is also destroyed' [1017b18], because if things that are prior are destroyed the things coming after them are also destroyed. For there would be no body if there were not a plane nor a plane if there were no line, if it is in fact the case that every body and plane has limits and that plane and line are respectively those limits; for in magnitudes the limit is always

prior to that of which it is a limit, being one dimension less than the latter. – It may be that Aristotle adds, 'as some people say' [1017b19] because, for those who hold that body and surface have limits, body and surface are themselves destroyed if their limits are destroyed; but this conclusion does not follow for those who hold that there is an infinite body.[178] Or plane and body are also destroyed along with the destruction of line and surface in the view of those who think that these latter are substances and principles and elements; for according to those who generate bodies out of various combinations of plane figures, as does Plato in the *Timaeus* [54Bf.], body too is destroyed if planes are destroyed. And by the same reasoning, surface is destroyed if lines are destroyed, and line is destroyed if points are destroyed, for all of these are related to one another in the same way.[179] However, things that have limits are not destroyed along with their limits according to those who hold that the limits are not included in the essence of the things of which they are limits, for [in this theory] 'that which is limited' is not part of the formula of body or surface.[180] – It is thought by some, he says, that in general number is this sort of thing, so that if number were destroyed none of the other things would exist, and that all things are limited by number. This is the doctrine of those who say that numbers are the elements of the things that exist, as the Pythagoreans thought, and their opinion was discussed in Book 1. According to Plato too, numbers are [the principles] of all things, although not as their constituent elements but as conferring a form on each of the other things; for the Ideas, which are numbers, are causes of the existence of other things.

In addition to the meanings of substance mentioned above, Aristotle says that it is also said to be [4], 'the essence, the formula of which is the definition' [1017b21], for when we are asked what the essence is, we answer that it is the definition. (For 'definition' (*horismos*) he uses the more general term 'formula' (*logos*).) He says, then, that the definition of each thing is substance of that of which it is the definition, but not in an unqualified sense; for if the statement were taken thus, there would be substance of quality and of quantity and similarly of the other [categories of accident]. But [substance in this sense] differs from the enmattered form, which, as he just said, causes each substance to be what it is, because *that* substance, since it is in things naturally constituted and is a natural form, was substance in the primary sense, whereas the form of which he is now speaking, in virtue of which each thing has its essence, is also in things that are not substances; for essence does not apply only to substances.[181] Hence forms of this sort are not substance in the unqualified sense, but are substances of those things whose essence they manifest; for this reason they are also said to be in some way the substance of each thing.[182] One could also understand 'form' (*eidos*) as having several

meanings: in one sense it is, like the soul, the cause of being for that in which it is, as the soul [is the form] about which Aristotle first spoke; in another sense it is the being itself of which the sensitive soul was the cause – this latter is not the same as the soul, but the soul is its cause.[183] And it would be this [form] to which he now refers, not the external shape (*morphê*) or figure (*skhêma*), which is in some way the limit that sets the boundaries of each thing, [although] he would have been referring to this [form] as well when he said that the constituents that set the boundaries of each of the things that are substances are [themselves] substances.[184]

Now that he has presented the several meanings of substance, Aristotle says that the substances spoken of can be reduced to two types: [i] 'the ultimate subject, which is not further said of anything else' [1017b23], for he gave as the first meaning of substance, 'that which is not said of a subject'. If then substance is this kind of thing, what has this attribute most of all would be substance most of all. But such is the ultimate subject, and under this meaning of substance could be included all individual (*atomos*) substance:[185] both the composite substance [itself] is of this sort, [i.e. individual], and also substance in its sense as the primary form,[186] and [as] the matter, for matter is not predicated of anything. [ii] 'Whatever, being this particular thing, is also separable'; he explains what this is by adding, 'such is the shape and form of each thing' [1017b24-6].[187] Under this second meaning of substance would be included both substance as soul, as we said that natural forms [are substances]; and substance by reference to the constituents that set boundaries, as the substance [that is such] by reference to the limits of bodies, for bodies have their shape in virtue of these limits; and substance by reference to figures;[188] and substance by reference to essence. But if the word 'separable' (*khôriston*) were taken attributively,[189] it would indicate either that the form is separable from its substrate in thought (*epinoia*) (for the form is something other than matter and is separable from it at least by its formula[190] if not in its actual existence (*hupostasis*); or that it is separable because it is not eternal nor does it always remain the same in matter, but is separated and perishes. Such is every enmattered form, the form to which Aristotle referred in the second meaning he assigned to substance. Or form is separable because it is something other than its substrate and is not from the latter's substance, for it is thus that form too is related to matter. In this connection one might inquire about the forms in the divine bodies, for these forms are neither enmattered nor perishable and are 376,1
separable in thought[191] from their underlying body. For the forms that impart motion [to the divine bodies] would be substances of the first order,[192] since they are individual and ultimate and are not in anything. (Aristotle does not seem to include second substances,

about which he has spoken elsewhere, in the present enumeration of the meanings of substance.) It is possible too that he says, 'whatever, being this particular thing, is also separable', in reference to the forms in substance, using ['what is separable'] for 'what is *in* something separated',[193] for among the things that exist, only substance is separated and exists by itself; so that here Aristotle is not speaking about every meaning of substance but about substance in the primary sense, that in which the term is used in the two cases just mentioned: substance as the ultimate substrate, which is matter,[194] and substance as the form in matter. For such is 'whatever, being this particular thing, is also separable'; for what causes something separated to be this particular thing is substance in the sense of form.[195]

[CHAPTER 9]

1017b27 Things are called the same ...

Aristotle divides things that are the 'same' (*ta t'auta*) into [1] those that are accidentally such, and [2] those that are such in themselves. He shows that one thing is said to be accidentally the same as another in three ways, just as he distinguished three ways in which something is accidentally one and accidentally being. For either [i] accidents of the same thing are accidentally the same as one another; or [ii] an accident is accidentally the same as its subject; or [iii] (the reverse of this) the subject is accidentally the same as its accident. This last is the case in unnatural predications, for when we say that the musical is man, we are saying that the musical, which we make the subject of the proposition although it is an accident, is the same as the man whom we predicate of it, although man is the subject of musical and possesses the accident of which he is predicated. After mentioning the accidental predication that is unnatural, he adds: 'This [composite notion] is the same as each of them, and each of them the same as it' [1017b31], and explains what he means. For this composite, musical man, is the same as each of its components, man and musical, taken separately. Similarly, musical man is in turn accidentally the same as the musical. Moreover, each of the components in the composite, musical man, is again, when taken separately, accidentally the same as this composite. The difference in the propositions is that at one time we begin the combination [of subject and predicate] with one or other of the components, at another time with the composite, for they are [all] said to be accidentally the same as one another.

It is for this reason, says Aristotle, that things said to be the same in this way, i.e. accidentally, are not all said to be the same universally. He makes this point in the words, 'This is why all these things

are not stated universally' [1017b33], the equivalent of saying that this is why things said to be accidentally the same are not all said to be such universally. For none of the accidental attributes of a subject is among those predicated universally: every musical is not the same 377,1
as every white (although the musical is the same as the white when both belong by accident to the same subject), but musical and white are said to be the same in a particular instance (for attributes of the same subject are the same); nor is the musical said to be the same as every man (although the musical is said to be the same as man when a man is musical); nor is a man the same as every musical (although he is said to be the same as a particular instance of the musical). Aristotle uses a syllogism to show why accidents are not predicated universally. For universal attributes belong essentially (*kath' hauta*) [to a subject]; but accidents are not essential [attributes]; therefore, accidents are not predicated essentially in the case of universals but in the case of particulars, and hence a distinction is needed. But he says that in the case of particulars, an accident and its subject are said to be the same 'without qualification', i.e. without distinction, because particulars do not admit of any distinction whatever; for Socrates and musical Socrates are said to be the same thing without distinction. This is so because particulars are not predicated of more than one subject: thus we do not say 'every Socrates' or 'some Socrates', as in the case of man, for we say 'every man' or 'some man' because man is universal, and universals admit of distinction.

Aristotle says that things the same as one another [2] in themselves are said to be such in just as many ways as what is one in itself. Now [previously] he gave a number of meanings for one in itself, but here he does not mention all of them, either because of his statement that what is the same in itself is said to be such in ways similar to the meanings of one in itself, or because he believes that all those meanings [listed] under one in itself can be reduced to the following types. He says that those things are said to be the same in themselves [i] whose matter, i.e. substrate is one either [a] in kind or [b] in number. The substrate is one [b] in number if the thing under consideration is something numerically one, for in this way one and the same person is identical with himself. The matter of heteronymous things can also be one, for the way up and the way down have a substrate that is numerically one and are the same by reference to it.[196] Aristotle, however, is speaking of matter in reference to numerical unity,[197] for things whose matter is numerically one are identical with themselves; for a thing is the same as itself. He makes it clear that this is his meaning by saying, 'when the same thing is treated as more than one' [1018a8]. But the substrate or matter are one [a] in kind in the case of things whose substrate is of the same kind although not numerically one: for instance, if bronze or stone were

the substrate of several individual statues, these statues would have a substrate that is the same in kind; and [even] things that are specifically different[198] [are the same if] they have an ultimate substrate that is one, as all things that can be melted are the same as one another, and one, because there is a primary underlying body, one in kind, from which they all come. He says that things said to be the same [in themselves][199] are also [ii] those whose substance is one; by 'substance' he means the form. Included within this class would be things that are specifically or generically the same, and those that are such by analogy, for these latter have a certain community of form and formula. Aristotle gives a definition of things that are the same, saying that sameness is 'a unity' of several things [1018a8]. It has been shown that [some] things are the same by virtue of their being and substance,[200] [others] in an accidental way; for both those whose matter is one and those whose substance, i.e. form, is one are the same by virtue of their substance. But since a thing is also said to be the same as itself, he adds, 'or when the same thing is treated as more than one'; for if we say that something is the same [as itself], we are treating the one thing as two.

And things are called 'other' (*heteros*), he says, in ways opposite to [the meanings of] 'same'. Things whose forms are different[201] are other, as a horse is other than a man; and those from the same matter but not having the same form would also be called other, as in the case of objects made of wood that are unlike in form; and those whose matter is other – if numerically other, the things are other in number, if specifically other, they are other in species. Things having the same form would also be called other if they were from a different matter, e.g. a gold and a silver cup or a stone and bronze statue. Moreover, things are also other if the formula that manifests their essence is other, as those that are heteronymous. And to which of the things that are the same would be opposed those that are other because heteronymous?[202] If to those said to be the same because their matter is numerically one, then heteronymous things would also be the same, for they too are the same by virtue of a matter that is numerically one. It is possible, however, that in saying, 'Things are called other if either their kinds (*eidê*) or their matter is more than one' [1018a9], Aristotle is referring both of these to matter;[203] for since things were the same if their matter was one either in kind or in number [1018a6], they would also be other if their matters were more than one either in kind or in number – in kind, if the matter of one thing were silver, of another gold, in number if their matter were of the same kind but divided. Thus in saying, 'if either their kind or their matter is more than one', he would be speaking about matter. If the text were divided in this way, [the second part], 'the formula of their essence', would refer to the form, for things are other if their forms are more than one

and different. And he says that in general what is other means the opposite of what is the same. In each case, then, we must take the reciprocal sense of 'same' to discover, by contrast with it, the meaning of 'other', as Aristotle himself has done.

He says that things are called 'different' (*diaphoros*) from one another [in the following ways]. [1] Those that are not only other, but that have their otherness while being in some respect the same. To the words, 'while being the same', he adds 'and not only in number' [1018a12]. This latter is equivalent to, 'while being the same, only not in number',[204] for things that are the same in number can no longer differ. For things that differ from one another cannot have numerical identity (for those that are the same in this way are not different), but must be the same 'either in species or in genus, or by analogy' [1018a13]. Those that are the same in species are in fact numerically different, ...[205] for things can differ both in number and in species if they are the same only in their genus. Similarly, things that are the same by analogy can differ from one another both in number and in species and in genus. Aspasius, however, understood the statement, 'whatever things are other while being the same thing not only in number but either in species or in genus or by analogy', to mean that different things must not only be other in number, but must also be the same as one another in some respect if they are to be not only other but different; for [he held] that things numerically other are not completely different unless they are also the same in one of the ways mentioned.[206]

As [further] meanings of 'different', Aristotle instances [2] things whose genera are other: these are things that are other in every respect – animal and colour differ in this way;[207] and [3] those that are contraries (*enantios*): these are things that, being in the same genus, are most widely separated from one another. The first things that were called 'different' are not such according to this third meaning; for the earlier statement dealt with things in the same genus but of a different species, whereas things that differ as contraries take on the additional requirement that they be as widely separated as possible.[208] He says that those things are also different [4] 'which have otherness in their substance' [1018a14]. This statement too could refer to the contraries, or he might mean that opposition (*enantiôsis*) is otherness, for even things that are not contrary to each other, but have nevertheless some opposition to each other in their substance, are different. It is thus that earth and water differ, for the dry is in the substance of earth and the moist in that of water.[209] Things can also be called different if, being the same in respect to their substrate, they have otherness in respect to their substance and definition, as those that are heteronymous. A counterfeit coin and a [genuine] drachma can have otherness and opposition in their sub-

stance, and again a corpse and a man,[210] as Aristotle said in *On Interpretation* [21a23].

He says that things are called 'similar' (*homoios*) [1], 'if they have the same affections in every respect' [1018a15], i.e. if they are completely alike in appearance (*eidos*) and shape[211] (for this is what he means by 'affections' (*pathê*)); such are the Dioscuri, Zethos and Amphion,[212] and twins in most cases. These things are similar to the greatest degree. Things are also similar [2] more of whose affections are the same than other, for they are called similar because the affections that are the same predominate. For these people usually have more affections that are the same than ones whereby they differ, as a German is similar to a German and an Indian to an Indian. Moreover, the characteristics that one inherits from his parents are also called similar in this way. And things are called similar [3] 'whose quality is one' [1018a16], as hot things are similar in respect to this quality, [heat], even though they are dissimilar in other respects. [This is so] whether they share equally in the same quality, or whether, although they are[213] in the same quality, they do not possess it equally, but one of them has more of it and another less, as do things that are hot. [4] As a fourth meaning of similar, he lists the case in which most of the contrarieties[214] with respect to which certain things have a natural capacity to be altered, i.e. to change, are the same. Thus wine has a natural capacity to be altered with respect to colour and to differences of taste and to aroma; several wines are therefore called similar when most or the most important of the qualities with respect to which they can change, i.e. be altered, are the same – in the case of wine, taste and fragrance (*euôdia*) are more important than colour. Things that were called similar in the second sense of the term are not similar in the fourth sense, for here there are the additional words, '[more of the contraries] with respect to which it is possible for things to be altered' [1018a17]; for 'more' of these [contraries] is not 'more' [qualities] without qualification.[215] – He says that things are called 'dissimilar' in ways opposite to those in which they are similar; for they are dissimilar if they differ in appearance, or have fewer of the same affections, or are different in their qualities, or if more or the more important [contraries] with respect to which they have a natural capacity to be altered are different.

[CHAPTER 10]

Aristotle also discusses the ways in which 'opposites' (*ta antikeimena*) are opposed, and to his customary division of opposites into four kinds – contraries, privation and having, relations, affirmation and negation[216] – he adds the things from which generations and perishings

[proceed] [1018a20].[217] These might be being and not-being, for generation is change from not-being to being, and perishing is change from being to not-being. But being is not an affirmation nor not-being a negation (for the former names something limited, the latter something without limits), nor are being and not-being thought to be either contraries or relatives or having and privation respectively. But by 'the things from which generations and perishings [proceed]' Aristotle more probably means matter and form, i.e. potentiality and actuality, for generation [proceeds] from what is potentially, or matter, to what is in actuality, or form, and perishing from what is in actuality, or form, to what is potentially, or matter; for matter is not privation nor contrary to form, although privation belongs to it as an accident. He might also be saying that generation and perishing are themselves opposites; or perhaps they are opposed as contraries.[218]

He says further that those things are also opposed, 'that cannot be present at the same time in that which is capable of receiving both of them, either the [attributes] themselves or their constituents' [1018a22]. For since not even the intermediates between contraries can be present at the same time in the same subject, and are not called opposites, he says 'either the attributes themselves', if these were to be [regarded] as contraries, 'or their constituents'; for because the things from which the intermediates are composed are themselves opposites, the intermediates cannot belong at the same time to the same subject to which one or other of the unmixed [attributes] belongs.[219] The words, '*either* the attributes themselves *or* their constitutents', might stand for, '*both* the attributes themselves *and* their constituents', for the constituents of the intermediates are themselves opposed to each other, and the intermediates composed from them [are also opposed]. 'Either the attributes themselves or their constituents' could also indicate that [attributes] that cannot be present at the same time in a subject capable of receiving both of them are opposed either to each other or to their constituents. For white and black are themselves opposed to each other (since they are contraries), and what is constituted out of both of them is also opposed to each of them because [white and black] cannot belong at the same time to any of them.[220] Perhaps, however, it is better to understand [the words quoted] in the way we first stated, for the text expresses that meaning. He does not intend to say that this consequence does not apply to all opposites, but that it also applies to certain other cases beyond those said to be opposed by their own nature;[221] for according to this meaning [of opposite], intermediates are opposed to their 381,1
constituents. And [thus] the words, 'and that cannot [be present]' may be taken as equivalent to, 'and in general whatever things cannot be present'. 'Hence[222] their constitutents are opposed' (1018a25) is an

elliptical statement equivalent to, 'hence the constituents of the intermediates are opposed to these latter.'

Aristotle next discusses 'contraries' (*enantia*). He says contraries are [1] those attributes differing in genus that cannot belong to the same subject, i.e. that, because they differ in genus from each other, cannot belong at the same time to the same subject. Such would be genera that are other and not subordinated to one another, as animal with feet and animal with wings, or acting and being acted on. Virtue and vice too are contraries in this way, for they themselves are genera, although not under a common genus.[223] And in general, [all] contrary genera [are included here], e.g. good and evil, for as Aristotle says in the *Categories* [14a24; 13b36] and in Book 4 of the *Topics* [123b9] and Theophrastus in Book 1 of the *Topics*, good and evil are contrary genera that cannot belong at the same time to any of the things below them. Of this sort too are things coming under the genera of movement and rest. Contraries are [2] whatever [attributes] differ most widely within the same genus, as contraries are usually defined; thus white and black and sweet and bitter are contraries. He says that another meaning of contraries is [3] those of the [attributes] in the same recipient that differ most widely from each other. White and black are again contraries in this way, for they are the most widely separated of the [attributes] that have a natural capacity to come to be in a body. Perhaps ['attributes in the same recipient that differ most widely'] means something other than 'those that are most widely separated in the same genus', because not all contraries have a natural capacity to come to be in the same subject (for 'rational' and 'irrational' are not relevant to the same subject, nor is the same subject capable of receiving them); or else, if the [definition] given here differs [from the second], it shows the possibility of stating different formulae of the same thing.[224]

He says that in another sense contraries are said to be [4] the things that differ most widely from one another among those under the same power (*dunamis*). By 'power' he may mean the discipline (*methodos*) that deals in similar fashion with opposed topics, e.g. rhetoric and dialectic (for under rhetoric the contraries are praise and blame, accusation and defence, persuasion and dissuasion, while in the case of dialectic they are falsehood and truth, for dialectic argues to both conclusions). Or by 'power' he might mean the natural state under which there are contraries: acuteness or hardness of hearing with reference to the sense of hearing, keen or blurred vision with reference to the sense of sight. Or by 'power' he means nature, which is the principle of movement; it is in virtue of their power that things having a natural movement upwards differ most widely from those whose natural movement is downwards. Or by 'power' he means every [form of] scientific knowledge and art, for the sciences are powers and

states, but contraries are the objects of the same science.[225] Thus good health and disease are contraries, for they are separated from each other as far as possible while being under the science of medicine, and a strong and weak bodily condition are [contraries] under the art of gymnastics.

He says that in another sense those things are called contraries [5], 'whose difference is greatest[226] either without qualification or with respect to genus or species' [1018a30]. This type includes, however, all the contraries already mentioned, and in addition the opposition of contradictory propositions and that of having or privation; for all these have the greatest difference in relation to each other. In this sense of 'contrary' an affirmative proposition is often said to be contrary to its negation, and having to privation. The words, 'Either without qualification or with respect to genus or species', mean the following. Things are contraries either if their difference is without qualification greatest, as when someone speaks of being and not-being or the full and the void; or if [they differ] with respect to a distinct genus or species, as in [the genus] animal [the differentiae] that differ most are rational and irrational or with feet and without feet, or in [the genus] colour white and black. This is the case with respect to genus, but with respect to species the contraries that differ most among men are, for example, to have scientific knowledge and to be without it, to know and to be ignorant, or to have virtue and vice.[227] For if it were our assumption that [the genus] 'state' is a species, virtue and vice would be contraries in the same species, for each of them is a state; [but] in fact they are the things that differ most widely in this genus, [state].[228] Or else things that are without qualification the most different are also said to be contraries in this species.[229]

After stating what the contraries are and the number of ways in which they are spoken of, Aristotle says that other things participating in these [types] are then called contraries by reference to them. For some things are contraries because they have some of the contraries mentioned, the case with fire and snow, for these are contraries because one of them has cold and the other heat, and not because they are most widely separated from one another in the same genus; other things are contraries because they are capable of receiving contraries, as when someone says that rational and irrational are contraries because the former is receptive of knowledge but the latter of ignorance.[230] Or the capacity (*dunamis*) that receives virtue [is contrary] to the capacity that receives vice; or the capacity in virtue of which matter receives heaviness [is contrary] to the capacity in virtue of which it receives lightness, as Aristotle said in Book 4 of *On the Heavens* [307b28-32].[231] Some things are called contraries because they produce contraries (it is thus that what heats is contrary

to what chills), others because they undergo contraries, as what can be chilled is contrary to what can be heated; other things are contraries because some of them are active, others passive, as what can heat is contrary to what can be heated, or as things heating are contrary to those chilling and those being heated are contrary to those being chilled. Losses and acquisitions [are also contraries, as] what is becoming hot is contrary to what is becoming cold, and what is losing heat is contrary to what is losing cold. But the having or privation of such [attributes are contraries, as] what has or can have heat and what does not have it, or sight and blindness. (From what has just been said, it is clear that [when he says] 'and things whose difference is greatest with respect *either* to genus *or* to species' (in reference to these I provided a second set of examples), Aristotle means those [that are contraries] with respect to genus *and* species.)[232] People say that losses of contraries are also contraries, e.g. what is losing health is contrary to what is losing disease, but [they say this] with reference to the loss or acquisition of the same thing as well, for what is acquiring health is contrary to what is losing it. And things are called 383,1 contraries by reference to their having contraries, as that which has health is contrary to that which has disease, and similarly with reference to privations (for what has been deprived of health is itself contrary to what has been deprived of disease); or in the case of the same thing, that which has it is contrary to that which has been deprived of it – what has health to what has been deprived of health.

'Since', says Aristotle, 'one and being are expressed in various ways' [1018a35] (namely in ten ways), the things spoken of in reference to them will also be expressed in an equal number of ways, the things, that is, that are spoken of in reference to each of them and that are in each of them. These are 'the same, the other, the contrary', the similar, and whatever others are common to all the genera of being; the same and similar and other and contrary are in fact *in* substance and in quality and in quantity and in each of the other genera. Hence each of them will also be expressed in ten ways; indeed, there is contrariety in the [genus of] substance because the things having contraries or undergoing or producing or losing or acquiring contraries are themselves also said to be [contrary] to one another. As a consequence the distinctions made for same and other and similar and contrary will apply to the categories: it is for this reason that Aristotle mentions this point. This fact again makes it clear that the investigation of these attributes of being is the task of the first philosopher.

Next he enumerates the ways in which things are said to be 'other in species' (*hetera tôi eidei*),[233] for previously he stated the senses in which things are called contraries, and among them was 'those that differ in species'; hence he now enumerates the ways in which things

are specifically different. He says, then, that those things are other in species [1] that are different species of the same genus but are not subordinate, i.e. species of the same genus that are divided against each other.[234] As another meaning of things other in species he lists [2] any that, being of the same genus, have *some* difference with respect to each other; in this way subordinate species would also be other, for they too have differences with respect to each other.[235] He says that things are [specifically] other [3] if they have contrariety in their substance and definition. In this way water would be called other than fire, for their contrariety is in their substance; for fire is hot and dry in its substance while water is cold and wet, and their genus is either 'natural body' or 'element', for things that are other in species must be under some one genus.[236] He says that contraries are other in species [4], 'either all of them or those so called in the primary sense' [1018b3]. [Specific] contraries in the primary sense are either those in the same genus that differ most from each other (since this is actually the definition of contraries), or by 'primary' he means contraries that are properly such, and not [merely] because they either participate in contraries or are capable of receiving them or produce or undergo them, or are contraries in [another] of the ways just mentioned; for these latter too are called contraries. For it is not necessary that things capable of receiving certain contraries should be other in species, since [it is in] virtue of the same thing that they can receive contraries.[237] He also calls other in species [5] those of the indivisible species that, being in the same genus, have other formulae, i.e. definitions, as [the definitions] of horse and cow [are different]; for the indivisible species are last [in their genus]. He calls other in species too [6], 'whatever things, being in the same substance', i.e. in the same definition or formula, 'have a difference' in relation to one another [1018b7], as do individuals in the same species such as Simon and Socrates; for the species (*eidos*) peculiar to each of them is different.[238] [Or in saying], 'Whatever things, being in the same substance, have a difference', he could be speaking about bodies which, unlike fire and water, do not have contrariety in their substance, but have *some* difference, as earth is other than water. For earth is not something other than water in the same way in which it is other than air (for in the latter case the difference is one of contrariety), nor is water something other than air and fire in the same way.[239] But Aristotle has already discussed these [contraries].

He says that things are called 'the same in species' (*t'auta tôi eidei*) in ways opposed to these; and if one takes each meaning of 'other in species', it is not difficult to find what things are the same in species. Some things will be such because they are in one respect other in species, in another respect the same, as subordinate genera are both other and the same in species. [They are] the same because things

from the same genus but not subordinate were other in species, and therefore those that *are* subordinate will be the same in this respect, inasmuch that is as they are subordinate;[240] but other in turn because some things were also other in species according to this meaning, for those things were other which, although in the same genus, have some difference, and subordinate [species] too are of this kind. Some things will therefore be the same in species because they are subordinate; others because, being in the same genus, they do not have a difference, as a man [is specifically the same] as a man; others because they do not have contrariety in their substance, as fire in relation to air, for their species are not completely contrary: for since fire was something other than water because it has a contrariety to water, it would be the same as air.[241] Or if fire were said to have a contrariety even to air, still it will be the same [as air] inasmuch as [air is] hot, for fire has nothing in its substance contrary to that [quality].[242] Things in the same species would also not be contrary, as horse [is not contrary] to dog nor black to grey. Further, things in the last species of a genus whose formulae are not different; thus a man [is not contrary] to a man, since men are specifically the same, nor a horse to a horse. Also any things that, being in the same substance, have no difference whatever; in this way what is numerically the same would be the same as itself, and things having more than one name are the same as one another. We should not, however, look for another thing corresponding to each [name] that we give something, for in many cases things that are the same turn out to be the same as one another under the different names we apply to them.[243]

[CHAPTER 11]

Next Aristotle sets forth the meanings of 'prior' (*to proteron*) and 'posterior' (*to husteron*). He also distinguished the senses of 'prior' in the *Categories* [ch. 12], but there he took what is prior in time, in nature, in arrangement, in power, and, in the case of reciprocals,[244] the one [that is prior as] cause of the other's being. Here, however, he says that things are called prior [1] because they are nearer to some
385,1 definite beginning that, as the beginning of several things, is determined either absolutely and by nature, or by reference to something, or that is at least thought to be a beginning by certain people. After saying, 'because there is something first and a beginning in each genus' [1018b9], he goes on to discuss the genera[245] in which the prior, i.e. the beginning taken in this sense, is found. There are five of these: in reference to place, time, movement, power, and arrangement (*taxis*), and he deals first [i] with what is prior in reference to place.

For those things are prior in reference to place that are nearer to a certain place[246] and those posterior that are farther from the same place, whether this place is determined by nature, as is the centre of the universe or its outer limit, i.e. its circumference; or is determined by chance and not by nature, as when a person calculates the spatially prior and posterior from the place in which he is, for [then] the prior is what is nearer to his own location but the posterior what is farther and at a greater distance from this. The words that precede, '[a thing is prior because nearer to] some beginning that is determined either absolutely and by nature or by reference to a particular thing or somewhere or by some people' [1018b10] would mean [the following] in reference to place. [A place would be prior] 'by nature', if, as Aristotle says, it were assumed to be the centre or the outer limit of the universe;[247] 'by reference to a particular thing' if a certain place that is not first by nature were assumed to be first in reference to certain other places, as the first of the places leading to Eleusis is the one closest to that city, for it is prior to those coming after it; 'somewhere', if one were to calculate the prior from the place in which he is; 'by some people', if each of those who assume [that something is] prior establishes the place by reference to which the prior [is determined].

[ii] 'Other things are prior in time.' After speaking about what is prior in reference to place, Aristotle deals with what is prior in reference to time, which is not defined in precisely the same way as the spatially prior; for in the case of the latter, the first is what is nearer to some determined place, but this is not so in the case of chronological priority. Among events that have [already] occurred, the more distant [is prior], but among those still to come the more proximate [is prior]; for among past events those farthest removed from the present are prior whereas those closer to the present are posterior, but among future events the reverse [is true]: those closer to the present are prior, those farther from it are posterior. Because we take the present (*to nun*) as the beginning of time, we say that future events closer to the present will be prior, but that past events farther away from the present were prior. For those events are prior in time that occur at a prior present (*en proterôi nun*), and in the case of the past, the prior 'now' is the one more remote from the [actual] present, but in the case of the future, it is the one more proximate to the [actual] present. The present is therefore the natural beginning of time, but because the present that we assume is variable, it seems that in the case of time too the beginning is not always determined by nature.[248]

Again, things are prior [iii] in reference to movement if they are closer to the first mover; thus the boy is prior to the man, for he is closer to the father. 'For this too', he says, 'is a kind of beginning in

the unqualified sense' [1018b21], i.e. by nature; [he means] the prior source of movement in the case of natural movement. In this way the movement of the fixed stars is first, and the movement of Cronus [is prior] to that of the other [planets] because Cronus is closer to the first mover.[249] It seems likely that by adding the words, 'this too is a kind of beginning in the unqualified sense', Aristotle is indicating that the beginning assumed in the case of time was itself a beginning 386,1 in the unqualified sense, for such is the present.

Things are also called prior [iv] in reference to power. For one who rules and is more powerful is prior in power,[250] but he is more powerful and a ruler whose choice makes it necessary that the posterior follow, i.e. move or not move, as the ruler thinks good, for the choice of the ruler is the beginning of the movement of those subject to him; indeed, choice is in general a kind of beginning in man. And in reference to power, the prior is the ruler, the posterior is the one subordinate to him; but the beginning is the choice of the man who sets things in motion – one who exercises this choice is closer to it, but one who is moved by another's command is farther from it. Things are also called prior [v] by arrangement, and Aristotle states what things are prior and posterior by arrangement: any that are separated in a certain ratio by reference to some one definite thing have priority and posteriority by arrangement, as in a chorus the man standing first in line [after the leader][251] is prior to the one third in line, for it is according to their distance from the leader of the chorus that they have their priority and posteriority by arrangement, for the leader of the chorus is its beginning. So too the second-lowest string [of the lyre] is prior by arrangement to the bottom one according to its distance from the middle string, which is assumed to be a beginning in the tuned instrument.

Some things, he says, 'are therefore called prior in this sense' [1018b29]. Thus Aristotle brings all the five senses of the prior that have been discussed under one common characteristic: the fact that, since there is some one thing that is first, i.e. a beginning, in each genus, the prior is determined by reference to distance from or proximity to this first thing; and even though the things that are assumed [to be prior] are different – in one instance place, in another time or movement or power or arrangement[252] – still the sense of the assumption is the same.

But he says that things are called prior in another sense besides this one, those that are prior [2] for knowledge; for things the knowledge of which is prior seem to be prior both without qualification and by nature, whereas those the knowledge of which is posterior seem to be posterior. But he goes on to show, by means of the difference in things known, that what is prior for knowledge is not prior without qualification by nature as well; for he says that some

things are prior in their formula but others by sense perception. For universals are prior in their formula, and they are also prior without qualification by nature (for through them [we have] the sciences); but in sense perception particulars are prior, and they seem to possess priority so far as we are concerned, but they are not prior without qualification. According to this meaning of prior, then, both universals and the objects of sense perception will be prior. He says that the accident too is prior in formula to the composite of subject and accident, and the accident would be prior in formula, not for the knowledge [conveyed] by the formula, but because it is part of the formula; for what is more simple is prior, and the part is more simple than the whole. [In Aristotle's example] the whole is 'musical man', the part is 'musical'; and even though it would be impossible for the musical to exist at all if there were not some subject, nevertheless the musical, although posterior in reality (*ousia*), is prior in formula because it is part of the formula, 'musical man'.

Aristotle says [3] that among affections too the affections of prior things are called prior, those of posterior things posterior. Thus straightness is prior to smoothness, for straightness is in itself an affection of line,[253] but smoothness of surface, and line is prior to surface. But since he has not said in what meaning of 'prior' line is prior to surface, he now explains how it is so by adding another sense of priority that he says is 'with respect to nature and substance' [1019a2]. For he says that things are called prior [4] both in nature and in substance, as those whose destruction involves the destruction of other things but that are not themselves destroyed when the others are,[254] a meaning of prior that (he says) Plato employed;[255] it is in this way that line is prior to surface. – 'Since being is expressed in various ways' [1019a4] (for there are ten of these), he says that what is first with respect to being and existence is the subject of all other things, and substance is this kind of thing; for inasmuch as its destruction involves the destruction of others but it itself is not destroyed if they are, it is prior to the others. But both inasmuch as substance is subject and inasmuch as the other things exist because they are in this subject, substance is being most of all and in the primary sense.

He says that according to another meaning of being and to be, that which is first either potentially or actually is prior. He shows that in this way the whole is both prior and posterior to its parts; for the part is potentially prior to the whole, but (as he will show) the whole is actually prior to its parts. He uses an example to show what 'potentially' and 'actually' mean: half a line is potentially prior to the whole line and the part to the whole and in general matter to form and to the composite. For each of these, as it exists potentially in the whole, is prior to the actually existing whole because it is a part of the whole

(for the whole results from the combination of these parts), and no part, so long as it is a part, exists by itself and actually; but when the parts no longer exist potentially, as they did when they were in the whole, but are regarded as existing actually and by themselves and not as parts of the whole, then they are posterior to the whole. Hence the parts are prior when they exist potentially but posterior when they exist actually; for if the whole is dissolved each of these parts comes to be actually, separated from the whole [to which] it was prior when it existed in it potentially. Consequently, if what actually exists is being in the primary sense, but it is the whole that actually exists, the whole would be prior, in the primary sense, to the part. For the part is not actually prior to the whole (because it is from the dissolution of the whole that its part begins to exist actually, for this kind of part has been separated from the whole); but when the part is regarded as existing potentially, and is [really] a part, it is prior to the whole because it is a constituent of the whole. Hence the whole is actually prior, but the part, i.e. the constituent, is potentially prior.

Aristotle says that in a certain sense all the things called prior and posterior are so called by reference to these last,[256] and he gives the reason: 'for some things can exist without the others in respect to generation, as the whole without its parts, and others in respect to perishing, as the part without the whole; and so in the case of the other things too' [1019a12]. By this he means that in a certain sense all the things said to be prior and posterior are so called by reference to this last meaning [of prior and posterior], the potential and the actual. For among substances that are generated (it is in fact [only] in the case of substances that there is generation in the proper sense), some are prior potentially and others actually;[257] for the parts, existing potentially, are prior to the wholes, whereas the wholes, existing actually, are prior to the parts – this point he shows by what he says next. The statement, 'for some things can exist without the others in respect to generation', is equivalent to saying that some things [are] prior in respect to generation and are actually beings (for generation is the road to being),[258] and such are the wholes. To show that [the wholes] are prior, he says, 'they can exist without the others'; for it is clear that things that exist when those to which they are compared in respect to priority do not yet exist are prior. But if the whole actually exists, it is impossible for its parts to exist actually. Consequently, in the generation of the whole that [already] exists,[259] the whole is prior to its parts, on the supposition that the whole exists but the part does not; but in the perishing of the whole the part in turn exists but the whole does not. But if the whole exists in generation but the part in perishing, [whole and part] would be compared in respect to actual and potential being.

Aristotle adds, 'and so in the case of the other things too'; he is

referring to the other things that exist, those that are not generated in the proper sense, for not all the things that exist have their being through generation if (as we suppose) generation in the proper sense belongs only to perishable substances. In the case then of those things that are not generated but are themselves somehow wholes and have parts, there will be a similar situation; for in their case too the parts, being potentially prior to the whole, will be posterior to it in actuality. So it is with line in reference to surface, and with all accidents in reference to substance – quantity, quality and the others. But the parts of the eternal and divine bodies would not exist potentially in the whole, at least not if parts that exist potentially are those that can at some time begin to exist actually because they have been separated from the whole. But the parts of those bodies are inseparable from the whole, and *that* whole exists forever in actuality. As for the things that belong to substance as accidents, although generation is not properly predicated of them, still there is at least a kind of generation of them as well, one that is called generation with an addition but not without qualification.[260] And there is generation in respect to each of these [accidents] too, and one of them is actually prior, the other potentially posterior.[261] For in the case of each genus, that in which the change terminates is actually prior, but that from which [it proceeds] is potentially prior;[262] and if the change goes back from this [point],[263] the latter [becomes] in turn potentially prior, but that in which the change terminates, which in the first change was potentially prior, [becomes prior] in actuality. And through this change the parts too are [at first] potentially prior to the whole, and the whole itself becomes in turn prior to its parts,[264] for because the whole can be resolved into its parts, it will be potentially its parts when it is actually a whole. In this way, then, if the parts are compared [to the whole] in respect to potentiality, they are potentially prior to the whole, but in respect to actuality the whole is prior to its parts, as we have shown; for what is actually prior to certain things is prior to them without qualification, but what is potentially prior to them is not prior in this absolute sense.

[CHAPTER 12]

Next Aristotle sets forth the meanings of 'capacity' (*dunamis*),[265] and 389,1
says that capacity means [1], 'The principle of movement or of change that is in another thing, or in [the same thing] *qua* other' [1019a15] – by 'principle' (*arkhê*) he means the cause. This is the productive capacity; for that in virtue of which the agent and the maker acts is a capacity. He says 'or of change' because the capacity produces not only movement but also rest, and of this latter (as he will say a little

later) it is correct to predicate the term 'change' but not 'movement'. According to this meaning the arts would be capacities, for it is in virtue of them that artisans act and produce. Such is the productive capacity, which is not in the thing that is moved and comes to be (for nothing makes itself), but in another thing, for the capacity to make a house is in the builder, not in the house being built. Since then the maker is distinct from what is being made and the productive capacity is in the maker, it must necessarily be in another thing and not in the thing being made. But it is possible for one to be the cause of some kind of change in himself too because he possesses the principle in virtue of which and through which the change [occurs], as when the physician heals himself. For this reason he adds to 'in another thing' the words, 'or in [the same thing] *qua* other', for it is not *qua* sick man that the physician has the capacity to cure himself; for to be a physician is not the same as being a sick man undergoing treatment. – He says, then, that capacity has this meaning, but he adds 'in general'[266] either to indicate the universal, so that what he is saying is, 'Capacity is, therefore, the universal principle of change'; or to indicate the primary sense [of capacity], since Aristotle thinks that the productive capacity is capacity in the most proper sense of the term, as he will later say both in this book and in Book 9 of this treatise [1045b35], which contains his principal treatment of capacity.

He gives next a meaning of capacity [2] according to which some things are said to have a capacity for being affected[267] and moved by certain [other] things. Both the capacities that have been mentioned are therefore in the things that possess them, but the productive capacity acts upon some other thing extrinsic to it, whereas the passive capacity, since it is affected by something else extrinsic to it, is in the thing that is affected and that changes; for the words, 'by another', signify the passive capacity. But he adds, '*qua* other', because, again, of the physician who cures himself; for when a man is ill and has the capacity to be affected, i.e. to be altered by medical treatment, if this man is also the one who has the capacity to produce this change [he has it] not *qua* sick man, but inasmuch as he is some other thing: for inasmuch as he is a physician he is another man than the one who is ill. For the sick man does not have his illness in his [role as] physician (for as there is a capacity to act there is also a capacity to be affected), [so that] this passive capacity too is by its nature a cause.

Aristotle says that we sometimes predicate 'have the capacity' of things capable in general of being affected in some way, but that at times we do not predicate it of all affections but [only] [3a][268] of those among opposed affections that are better. [In such cases] we call something a capacity inasmuch as it enables a person to change for

the better, e.g. the capacity for health, but we do not [speak of a capacity] for illness, for it is more usual to call this latter an incapacity 390,1 rather than a capacity. And he points out that there is a similar difference in the case of the productive capacity; for a capacity is called productive [3b] not merely [when a person can] simply do something, but especially when he is capable of completing the action successfully or according to his own choice, as we say that he has a capacity for speaking if he speaks well, but not if he simply talks. We say too that one who has come to a certain place according to his own choice has done this through his own power, but we would not say this if he had been forcibly compelled by others to come there. Aristotle has already made this point in reference to passivity as well, and he reminds us of this by his brief remark, 'so too in the case of being affected' [1019a26]; for one who sees in any manner whatever is capable of seeing, as both the man whose sensory perception is acute and he who perceives in any way [is capable of perceiving]. But we might raise this question: If the productive capacity is a principle of movement and change in another thing or in the same thing *qua* other, how could it include those who walk in virtue of the capacity *in* them, or those who speak in virtue of the choice *in* them? for these people seem to move in virtue of a principle of movement that is within themselves. Indeed, both art and choice, which are principles [of movement], are in those who initiate movement in virtue of them. Aristotle therefore reminds [us] that this capacity is not another capacity in addition to the productive capacity;[269] and it is this latter in virtue of which the activities of the states are performed by those who possess the states. ('So too in the case of being affected', means 'in the same way *as* in the case of being affected', for he has already said this in reference to those who are affected.)

In addition to these meanings of capacity, he lists [4] the states in virtue of which we say that some people are unaffected or are affected only with difficulty by what is worse; for to be easily affected by worse things seems to result from incapacity, whereas to be affected by them only with difficulty or not at all is the result of a capacity.[270] Divine things, then, are absolutely unaffected, but some things subject to generation are also unaffected by certain things, as the salamander is thought to be [impervious] to burning and adamant to splitting.

These, then, are the meanings of capacity that Aristotle presents. But one might raise this question: Since nature too is a kind of capacity, under which of the senses [of capacity] that have been mentioned would it be included? If nature is in fact a principle of movement in the thing itself,[271] it would be included under passive capacity, for things having a nature have the capacity to be moved by another, as Aristotle showed in the *Physics* [2.1]. The soul, on the other hand, would come under the productive capacity, for it is in

another or in the same thing *qua* other, for one who moves in virtue of his soul is somewhat similar to the physician who cures himself; for the soul, in virtue of which one who is walking moves, is other than the body that is being moved. Or else the soul is for its part a principle of movement in a way analogous to nature, but those who impart movement in virtue of the arts in the soul are acting in virtue of the states in them.[272]

Thus 'capacity' has these four meanings: productive and passive capacity, the capacity [that is] a state, and the one relating to impassivity, and since 'the capable' (*to dunaton*) derives its name from capacity and from the possession of a capacity, Aristotle pro-
391,1 ceeds to discuss the capable after giving the meanings of capacity. And he says that the capable means [1] that which has a principle of movement or of change, i.e. what has a principle of movement. He explains why he adds the words, 'and of change'; for even that which brings things to a halt (*to statikon*) is also capable of something, not only that which sets them in motion, and the [transition] from movement to rest is a change. He completes the formula of what is capable in this way by adding, 'in another thing or in [the same thing] *qua* other'. For that which has a principle of the movement or change that [occurs] in another or in itself *qua* other is capable, and such is the productive. He again adds, 'or in [the same thing] *qua* other', because of those who sometimes cure themselves. And the capable in this sense is so designated because of the presence of the first type of capacity, the productive.

He gives a second sense of the capable: [a thing is capable] [2] if it can be affected in some way by another. For what can be affected by another and has something that can move it is itself capable because it can be affected by that thing; for there was also a passive capacity, and what possesses this capacity may reasonably be called capable. Aristotle offers a brief explanation of this sense of the capable in the words, '[the capable means] in one way that over which something else has this sort of power' [1019a35].

He says that in another sense the capable is [3] what has a capacity in virtue of which it can change in any way whatever, whether for the worse or the better. And a thing would be called capable in this way by reference to that capacity in virtue of which, as Aristotle said, it successfully completes an action, and which *we* said is the capacity associated with the states and the sciences, from which proceed the activities [appropriate] to these latter, activities that he used as examples of this capacity.[273] But it seems that even in the other case he also attributed to this capacity an association with it of the productive power, for he [now] says that things are capable if they have a capacity to move in any way whatever in virtue of the principle within them, thus extending the capacity even to what is worse.[274]

Moreover, the examples that he now uses in reference to this capacity are not, as in the previous text, certain activities that proceed from the states, but [are examples] of passive capacities, since he says, 'for even what perishes [is thought to be capable of perishing]' [1019b3]. But when he said that things are called capable if they can in general be affected in some way, whether for worse or better, he distinguished those that can [change for] the better from those that can [change for] the worse. For a thing that grows and comes to be and, in general, changes for the better changes in this way because it has within it a state of the kind [that enables it to do so], whereas one that diminishes and perishes [does so] because it is deprived of such a state. Aristotle shows how and in what respect even these latter things might be said to be capable and to have a capacity when he says, 'If privation is in some way a having, everything that is deprived would be [capable] because it possesses [something]'.[275] For privation seems to be itself a kind of disposition (*diathesis*), for privation does not signify mere absence (since then it would have the same force as a negation), but absence together with a disposition of some kind; for this reason not seeing is not the same as being blind. For although privation is 'the absence of an attribute that a thing would naturally possess, and at a time when it would naturally possess it' [1022b7], still it is a disposition, but a disposition of a certain kind for a certain thing, one that belongs to the subject which would naturally possess the having. Privation is therefore *in some way* a having, for it is not a having in the unqualified sense, if it is in fact the privation of a having, but it is a having in the way I have stated, because it is a certain kind of disposition of the subject; for there must be some affection that belongs to the subject, and this would be a kind of having. For this reason Aristotle said in the *Physics* too that privation is in some way form [193b19]. If then privation is a kind of having, even things that change for the worse would change because they possess a certain having and capacity, for privation too is a kind of capacity, on the supposition that it is a having. Hence one thing would be called capable because it has a principle and capacity in virtue of which it cannot be affected at all by any of the things that are worse, but another because it is deprived of such a capacity. – After saying this, Aristotle adds: Or if privation is not a having, things that change for the better and that change for the worse would be [called] capable equivocally, the former because they possess the having, the latter because they have been deprived of it. But after the words, 'to have a privation', he adds, 'if it is possible to have a privation' [1019b9]. For if privation is in some sense a having, what has been deprived would be said to have a privation, but if privation were only an absence, 'to have' could not properly be said of it.

He says that in another way the capable means [4] what cannot be

affected (*to apathes*), that over which nothing, whether outside the thing or within it, has the power to destroy it. The added words, '[or in itself] *qua* other' [1019b11] indicate this last point; for even if a thing were to have within itself something capable of destroying it, it would have this as if it had something foreign within itself,[276] for nothing is destructive of itself. – Aristotle concludes by saying that all these things (he means those called capable in reference to acting and to being affected and to the states and to impassivity) are called capable either because they are capable merely of coming to be, or because [they can do so] in the right way; for either of these alternatives is possible in respect to each of the senses of capable that have been mentioned: [things can perform] either well or badly. He points out that this dual capability is found even in inanimate things, for people say that a lyre that is not well tuned is incapable of sounding, with the implication that we usually predicate capability of things capable of [performing] well.

Aristotle has dealt with capacity and the capable, because [a thing] is called capable from the presence [in it] of the capacity. He goes on to speak of incapacity (*adunamia*) as well, for this is the opposite of capacity – there is indeed an appropriate incapacity opposed to each of the two senses of capacity. These were the productive and the passive capacities,[277] each of them twofold: the productive capacity that is merely such and the one that produces good and satisfactory [actions], and similarly the passive capacity merely for being affected and that for being affected in a beneficial way; and in addition to these the capacity in respect to the states and again the one in respect to impassivity, [all] of which have themselves the double aspect that has been mentioned. Incapacity too has therefore multiple meanings, but he says that in general it is 'a privation of a capacity and of a principle of this kind' [1019b16]. Since then capacity is expressed in four ways, there would be a privation, i.e. an incapacity, in reference to each of these. And he says that this incapacity is expressed in three ways in reference to each of the first two capacities that have been mentioned. For in the case of the productive capacity, which is said to be a capacity [as] a principle of movement and change in another, or [in the same thing] *qua* other, [the corresponding] incapacity is expressed in three ways. For it is either predicated of what is absolutely without such a principle, e.g. if one were to predicate of a stone the incapacity for building or for generating; or it is predicated of what would naturally have [a capacity] and predicated of this without qualification at a time when it does not have it, e.g. if one were to say that a boy, who is not yet naturally capable of generating, is [simply] incapable [of generating]. These cases are therefore incapacities in a general sense and are not properly privations,[278] but [there is privation] in the proper sense when [something lacks a capacity which] by

its nature it ought now to have, as [the incapacity to generate] in the case of the mature man and the eunuch; for the eunuch is incapable of generating because he has been totally deprived of such a capacity, the boy because he does not yet possess the capacity, the stone because it cannot acquire the capacity at all. Aristotle uses the examples of boy and man and eunuch, that of the eunuch as an instance of one who is totally deprived ([our] example of the stone also applies to this case), that of the boy as an instance of one who possesses the capacity but who, because of his age, is not yet naturally [capable of exercising it], that of the man as an instance of one who does not possess the capacity that he ought naturally to have at the time when he ought to have it. And just as in the case of the productive capacity Aristotle has spoken of the opposed incapacity that is expressed in three ways, so he intends [to say] that in the case of the passive capacity too [there is] an incapacity that is expressed in three ways.[279] In one sense, what is capable of not being affected at all would be called incapable and be said to have been deprived of a passive quality of this kind. In this case we use the term 'privation' in a rather general sense; thus a wall would be called incapable of learning grammar or in general of perceiving or of being educated. In another sense, [a thing is also called incapable] because it does not yet possess [a capacity which] it can naturally have, as a child is not yet capable of measuring or of learning, just as a new-born puppy is also in a state of incapacity and privation. In another sense, something that does not see at a time when it should naturally see is incapable because it has been deprived, in the proper sense of the term, of such a capacity.

Aristotle says that there is also an incapacity opposed to each [type of productive] capacity, the one that produces movement successfully and the one that merely produces it. We have already spoken of the incapacity opposed to the latter, and have shown that it is expressed in three ways. Opposed to the capacity that produces movement successfully there would be an incapacity because of which something naturally capable of generating or acting successfully[280] is deprived of this capability, e.g. those who, because of the depravity of their character, are incapable of performing any virtuous actions. Similarly, there would be an incapacity said to be opposed to the capacity that enables [something] to be affected. But[281] it would be superfluous to seek to enumerate the three ways in which [an incapacity] is opposed to each of these capacities, the one for producing and the one for being affected; this is a task for those who delight in useless repetition. And we could also point out how Aristotle [himself] fails to mention the other capacities,[282] those related to the states and to impassivity. Perhaps this is because, in defining [incapacity] in general as 'the privation of a capacity', he might [be thought] to have

394,1 spoken in general about these capacities too, since the incapacities opposed to them would be privations of the states and of the capacity for impassivity, a privation as the result of which things are easily susceptible to change and destruction. For a body that has been deprived of the state by which it resisted change is said to be weak, i.e. to have an incapacity. Indeed, the capacity related to the states is similar to the productive capacity, differing from the latter [only] because it does not act on another but on the thing possessing it, while the capacity related to impassivity is similar to the passive capacity, differing from it [only] because the latter is a capacity to be affected by another whereas impassivity is a capacity not to be affected by another.

Having dealt with incapacity, Aristotle says that things are *adunata*[283] (incapable) [because] they seem to have been named from their relation to incapacity. Thus some things are called [*adunata*] by reference to the incapacity that has already been discussed, so that something is called incapable from the presence of each [type of] incapacity. But other things [are called *adunata*] in a sense different from those that have been mentioned, for something is called *dunaton* and *adunaton* not only because of the presence or absence of a capacity but in other ways as well; and he discusses each of these. 'The impossible' (*to adunaton*) means [1] 'that of which the contrary is of necessity true' [1019b23], thus e.g. the contrary of the proposition that the diagonal is commensurable [with the side] is that it is incommensurable. But that of which the contrary is of necessity true is itself false. Therefore, that which is of necessity false is itself impossible; for 'of necessity' signifies 'always', but what is always false and whose opposite is always true is impossible. 'But the contrary of this', he says (i.e. of what is called impossible in the way just stated), 'is possible',[284] that sc. of which the contrary is not of necessity false. Here he means by contrary what is the opposite of ['necessarily false'],[285] for it is possible that a man should be sitting because the contrary of this, that he is not sitting, is not of necessity false. But if neither a thing itself nor its opposite is either necessarily true or false, it is possible according to the present meaning of possible, for the possible is intermediate between the necessary and the impossible: the former of these is always true, the latter always false.

'In one sense, then', the possible means what is not necessarily false, for that whose contrary is not of necessity false cannot be of necessity either true or false. 'But in another sense [the possible means] [2] what is true', i.e. what exists here and now (*to êdê huparkhon*), that of which it is true to say that it *is*. This would be intermediate between what does not necessarily exist and what does not necessarily not exist, and would be referred to as the really (*kuriôs*) and properly existent.[286] 'But in another sense [the possible

means] [3] what *can be* true'; this would be what is capable of coming to be, and it is called 'what can be' (*endekhomenon*) in the proper sense.[287] Aristotle has thus distinguished [three meanings of] the impossible and the possible [as they occur] in propositions. But since geometricians also speak of a 'power' (*dunamis*) – they call squares 'powers', for what the side is able [to produce] (*dunatai*) is a power, and each side is able [to produce] the square from itself – Aristotle says that in geometry power is used in a transferred rather than in a proper sense.

These, then, are the things that he lists as possible: what is the opposite of that which is not of necessity false, and what is true because it exists, and what can be true. These things are of course (he says) not called *dunata* (possible) because they have a capacity for something, for possibility [is expressed] in propositions.[288] But as for the things called *dunata* (capable) in virtue of their having a capacity either to act or to be affected, or to do either of these well (i.e. to act in the one case, to be affected in the other), or a capacity to be impervious to change, he says that all of these are referred to the first capacity. The first capacity is the one he mentioned first when speaking about capacity and to which he prefixed the term 'in general' to indicate that this is the most proper sense of capacity.[289] This is the productive capacity, which is defined as 'a principle of change in another thing, or [in the same thing] *qua* other'. For, he says, the other things called *dunata* (capable) in virtue of a capacity are so called from this capacity. Some of them are capable because another thing has this kind of power over them, obviously the power to change and move and act upon them; such are those that have the passive capacity, for [they are capable] because there is a power capable of acting on them. Others [are capable] because nothing else has the power to change them, for those that are not changed by anything inasmuch as they are impervious to change are also capable, since nothing has the power to act on them; and for this reason even things easily susceptible to change are likewise capable. Other things [are capable] because they have [the capacity] in a certain way, for instance to bring about a beneficial change for the better or to be so affected and changed. It would appear, however, that in what he says here Aristotle does not mention the capacity in respect to the states, about which he seemed to be speaking when he said, 'Again, the capacity to perform this action satisfactorily or according to one's choice, for we sometimes say that people are incapable of speaking or walking if they merely walk or speak but do not do so well or as they choose' [1019a24]. But it may be that his present statement, 'Some things are capable because they have the capacity in a certain way', is also a reference to that capacity, not to some other. – 'So too', he says, 'the things that are incapable' [1020a4]; [he means] that those

opposed to what is said to be capable in virtue of the presence of a capacity (not however those [that are *possible*], as propositions are) are called [incapable] by reference to that capacity. This is either because they have no productive capacity, or because other things have no power over them, or because they are easily susceptible to change on account of their weakness, or because they do not have the capacity to act or to be affected in the right way. Hence it is, he says, that the definition of capacity previously given would at the same time be the primary definition of capacity; this definition was, 'a principle capable of effecting change in another thing or in the same thing *qua* other'.

[CHAPTER 13]

Aristotle also distinguishes [the meaning of] 'quantity' (*to poson*), for he dealt with substance in an earlier passage. He says that quantity is 'that which is divisible into its constituents, each or either[290] of which is by its nature a "one" and a "this" ' [1020a7]. He adds these last words lest anyone think that because it seems that things to which accidents belong can also be divided into their accidents, accidents too are parts of quantity; for no accident is a one in such a way that it is a this and of the same nature as its subject. And each of the parts of a number is a one and a this, as is the number itself
396,1 before it has been divided, and so too [the parts] of line and surface. But whiteness is not a this and a one as its subject is. But in saying, '[constituents] either or each of which is by its nature a "one" and a "this" ', he might be excluding those quantities composed of parts that do not have position, [among] which were both time and speech. Motion too would be included with these; for he will not call such things quantities in the proper sense.[291] As for number, although in the *Categories* it was said to be composed from parts that do not have position, he seems to say here that its parts do have a certain permanence.[292] But the genus is not divided into its species as into constituent [parts], for the formulae of the species into which the genus is divided do not exist in the genus; for genera are divided by addition (*prosthesis*), and consequently a genus is in no way less if a species is taken away from it, whereas a quantity is no longer the same once one of its parts has been taken away from it.

Since quantity is both continuous and discrete, Aristotle says that discrete quantity can be counted and continuous quantity, which is a magnitude, can be measured. Thus he would be saying that the infinite (*to apeiron*) is not a quantity, for the infinite cannot be either counted or measured. Or, if the thing that is being measured cannot be measured as a whole, but is in general something [only] the parts

of which, taken [separately], can be measured, the infinite too would come under quantity;[293] it is in fact *called* 'an untraversable quantity'.[294] – He also defines both plurality (*plêthos*) and magnitude (*megethos*). Plurality is 'that which is potentially divisible into non-continuous parts' [1020a10]. He adds 'potentially' rather than saying [simply] 'what can be divided into non-continuous parts', for the parts of a plurality are units (*monas*). 'But magnitude is that which is divisible into continuous parts', for every part of a magnitude is continuous. He also states how magnitudes differ: 'the one that is continuous in one dimension is length, in two dimensions, breadth, in three dimensions, depth' [1020a11], i.e. a solid. He says further that number is a limited plurality, for number is something that can be counted,[295] and what can be counted is limited; so that if a plurality were to be called infinite in some way, it would not be a number. Primarily, then, it is number itself that is divided into non-continuous parts,[296] but as a consequence, when numbered things, each of which is continuous, are divided inasmuch as they have a number, they are not divided as [a continuum, i.e.] into continuous parts.[297] – He says that plurality is that which is divisible into non-continuous parts, but that magnitudes [differ]: if a magnitude is continuous in one dimension it is length, if in two dimensions, breadth, if in three dimensions, depth; and he states what each of these is, first plurality,[298] then length and breadth and depth, saying that these are line, surface and solid respectively.

Returning to quantity, Aristotle says that some things are quantities in themselves, others accidentally so. For line and breadth (i.e. surface) and solid, and also number, are quantities in themselves and in the primary sense, whereas things that are also called quantities because they happen to belong to a certain quantity but are not such by their own nature are said to be quantities accidentally: if for instance someone were to say that the white is three cubits large, he would be saying this because the surface in which white inheres is of this size; so too in the case of the musical, Aristotle's own example.
He further distinguishes each kind of quantity, [dealing] first with 397,1
what is quantity in itself. For some of the things that are quantities in themselves and in the primary sense are such in virtue of their own substance; these are things in whose definition quantity is present. It is thus that line is a quantity, since it is [defined as] a magnitude in one dimension, and also surface and solid, for each of these is a quantity, the former in two dimensions, the latter in three; and we define number as a discrete quantity. Or else these things are quantities in virtue of their substance inasmuch as they are a kind of subject to which the other things called quantities are referred.[299] But certain things are quantities in themselves because they are affections (*pathê*) and possessions (*hexeis*)[300] of this kind of nature,

i.e.[301] because they are affections of quantity inasmuch as it *is* quantity. These are the essential predicates of quantity and are themselves quantities. Such are many and few[302] (affections of number), long and short (affections of length), wide and narrow (affections of plane), deep and shallow (affections in turn of solid); for even if quantity were said to be included in the definition of these attributes, still [they are not quantities] in the primary sense nor in themselves,[303] but [only] because they are in those things to which they belong. 'Many' at least means a quantity that is greater in respect to number, in the sense that it is a quantity only because of number; so too 'few' is a quantity that is less in respect to number. And in the case of each magnitude there is the implication that its affections are called quantities because of their subject, for 'short' means a quantity that is less in respect to length. The same explanation applies to the other affections as well. But here Aristotle includes both 'heavy' and 'light'[304] among the quantities that are such in themselves, although he will subsequently number them among qualities. Perhaps they would be quantities inasmuch as they signify excess or defect of internal inclination (*rhopê*), but qualities inasmuch as they cause the things possessing them to be carried down [or up].[305] In calling [these quantities] 'affections and possessions of a substance of this kind' [1020a19], he uses the term 'substance' in a somewhat general sense, but when he distinguished [the meanings of] substance he did say that even these things are called substance in some way.[306] He treats affections and possessions as synonymous terms: [things are called] 'possessions' from their being possessed, 'affections' because they are accidents of and belong to [the subject].[307] After saying, 'and the other things of this kind', he explains what these are: 'both the great and small and the greater and smaller' [1020a22-4] are quantities in this way, whether they are called such in themselves or in relation to one another. It is of course obvious that 'greater' and 'smaller' are relative terms (*pros ti*), but in the *Categories* Aristotle showed that 'great' and 'small' too are used relatively; here however he says that they have a meaning even in themselves, and a thing is in fact called 'great' in the absolute sense.[308] He says that great and small and the terms opposed to these are however transferred from quantities to certain other things that are not quantities. And it is clear that when great and small are applied to such things, the latter will not be quantities: for [we speak of] great suffering, such as pain, and an illness is called greater or great and ophthalmia great and white small, and none of these is a quantity.

Next Aristotle distinguishes the things called quantities in an
398,1 accidental sense and points out how they differ. For musical and white and everything [called] quantity [as] an accident of quantity (for accidents are quantities only because their subject is) are so called

in a different way than are movement and time. These latter are indeed called quantities by reference to things that are quantities in themselves, and for this reason they are [quantities] in an accidental sense, but not absolutely so, as are the accidental quantities first mentioned. For because we derive our notion of them entirely from magnitudes, movement and time too are called quantities and continuous in an accidental sense (i.e. because the magnitudes of which they are affections are continuous and divisible); but inasmuch as they *are* divisible and quantities because they are divided along with magnitudes, they belong to magnitudes more properly, in this respect, than do musical and white, and not in the same accidental way as the latter.[309] After saying, 'for these too are called quantities of a sort and continuous because the things of which they are affections are divisible' [1020a29], Aristotle explains what 'the things of which [movement and time] are affections' are: I mean, he says, [that movement is a quantity] not because the thing that moves is divisible, but because '[the space through] which it moved' is such. He means that movement is called a quantity and continuous not from the fact that what moves is a body, i.e. a quantity (for thus movement would be called [quantity] in a completely accidental way, just as white and musical are), but because [the space through] which and in which [the body] moved and which it traversed in its movement, is a quantity. For it is impossible that there should be movement except in what is continuous; because therefore that in which movement [occurs] is divisible and a quantity, 'movement too a is a quantity' [1020a32] – it stretches itself out alongside that in which it occurs and, we might say, measures the quantity of this latter and is divided together with it; hence movement too seems to be a quantity in the primary sense. But at least the notion of movement is derived from the magnitude that is its subject, hence movement [is a quantity] in an accidental sense, although not in the same way as the other accidents. Moreover, a magnitude is permanent and divided in itself, but movement is not permanent. – And time (*khronos*) is in turn, he says, a quantity and continuous because this movement is divisible; by 'this' he means the movement of which time is a number.[310] It should also be pointed out that although in the *Categories* Aristotle said that time is a quantity in itself,[311] he says here that it is a quantity accidentally, and prior to it, of course, movement, for time [is a quantity] because of movement. We must ask too why he does not locate movement and time among those *per se* quantities that he called 'affections or possessions' of quantities [1020a19], but puts them with those quantities that are such accidentally; for if movement is an affection of something continuous (for it cannot take place except in another), the affections too would belong with things that are quantities in this way.[312] He might be saying that affections which are in fact quantities in themselves

are accidental quantities, but not in the same way as those accidents that are not affections *qua* quantities, nor affections of quantities *as* quantities.[313] Or perhaps those [other affections] are quantities in themselves because they, as well as the [magnitudes] of which they are affections, are permanent, but neither of *these* affections, [movement or time], is permanent; and also because the former affections are in the nature of [their subjects] and, if their subjects exist, they follow them everywhere, whereas movement is no part of magnitude, but takes place in a magnitude.[314]

[CHAPTER 14]

399,1 Aristotle also distinguishes [the meanings of] 'quality' (*to poion*), because it too is expressed in various ways. He says that quality means in one sense [1] the differentia (*diaphora*) of the substance. At least if we are asked what particular kind or what sort of animal man is, we state some of the differentiae belonging to man, on the assumption that the differentia is predicated not in reference to what a thing is but in reference to what particular kind of thing it is (*to poion ti*), not however in the same way as quality (*poiotês*); for the differentia of the substance would be the quality in substance.[315] But one might ask how quality as differentia differs from quality as genus and species, for in the *Categories* Aristotle said that genus and species 'determine quality in respect to substance' [3b20]; and if they are qualities just as the differentia is, why does he not mention them here? Again, if genus and species do determine quality in respect to substance, how could they still be predicated in reference to the essence, which is included in their definition,[316] if the differentia is not predicated in reference to what a thing is but in reference to what kind of thing it is?[317] And Aristotle refers to the circle as a substance, either because he is taking circle in the sense of sphere or because certain people thought that even [geometrical] figures are substances. Or perhaps he is not speaking here of substance in its proper sense, but means by substance the existence (*huparxis*) of each of the things that exist, for the existence appropriate to each thing is its substance, as he said in distinguishing [the meanings of] substance; for one of these meanings was the nature of each of the things that are, for this is the substance of that thing.[318] The differentiae of which he is speaking would therefore be not only those that are in what is properly substance, but the qualities peculiar to each genus. Thus the differentia of circle is 'without angles', for the circle is a figure without angles.[319]

Aristotle says, then, that quality means in one sense the differentia of substance – substance, that is, as we have explained it. But quality

is also used [2] in reference to 'immobile things', which (as he explains) are mathematical objects. For in the case of numbers, a composite number is said to be of a certain quality, not however a number that is simply such and in only one dimension; for a number is in one way simply a number, but in another way it is square or oblong or cubic.[320] What he means by a number that is not in one dimension becomes clear from the words, 'those of which the plane and solid are representations' [1020b4]. As a plane is not continuous in only one dimension but consists in a combination of two continuous [magnitudes], and a solid of three, so certain numbers too are not simple but composite, and he identifies these clearly by saying that they 'have two factors'. For such are the numbers called plane or oblong or square, as twice 2 or twice 3 or thrice 3.[321] Numbers of this kind, then, have two factors, but others have three factors; such are cubic numbers, as twice 2 is 4, twice 4 is 8, for 8 is this kind of number: for twice 2 is 4, and twice 4 is 8.[322] And again, thrice 3 is 9 and thrice 9 is 27, for 27 is a solid and cubic [number]; for thrice 3 is 9 and thrice 9 is 27, analogous again to a solid. (He calls magnitudes 'representations' (*mimêmata*) of numbers because numbers come first.) And in general whatever is present in number in addition to its quantity, i.e. its substance or nature, is a quality of number. For the substance or quantity of each number consists in its being taken once and simply. For the substance or quantity of 6 consists simply in its being taken once; but if it were said to be twice 3, its quantity or 400,1
substance would no longer be taken simply but with a certain modification (*pathos*) and quality; for whatever is stated with an addition is stated with some quality, so that [this is also the case with] numbers such as these. Aristotle would [therefore] be speaking of the differentiae in number just as he did of the qualities in substance; for if we take 6 simply as 6, it is a number, but if we take it as twice 3, it is then with a quality. But if the differentiae of immobile things is a second meaning of quality, why did he mention circle in the first group? for circle is one of the immobile things, i.e. mathematical objects. Perhaps it is because he is speaking here [only] of immobile things [that are] numbers. Or if he is speaking about all of them, he would there have mentioned circle apart [from the other mathematical objects] as an example of the differentia. But if this is the case, he would there also have meant the differentiae of substance that is properly such.[323] – Length, therefore, would be an extension of numbers in one dimension, if, that is, a number is taken once. But plane [would represent] numbers having two factors, and solid those having three factors; [the mathematicians] call the former of these square, the latter cubic, numbers.

As another meaning of quality Aristotle lists [3] the affections of natural substances, the substances that move; for those that move

are natural and enmattered substances, which he distinguishes from mathematical substances, for the latter are immobile. He uses examples to explain what he means by the 'affections' of substances that are in motion, saying that in general these affections and qualities of natural bodies are the differences[324] with respect to which bodies are said to be altered. It should be noted that he again includes heaviness and lightness among these [qualitative] differences, although shortly before he classified them with quantities that are such because they are affections of quantity *qua* quantity. – After saying that the affections of moving substances are qualities, he adds to these affections [4] both virtues and vices and good and evil in general, which are not affections of bodies nor the kind of qualities with respect to which alteration takes place.

Having set forth the preceding meanings of quality, Arisotle says, 'In practical terms, quality could be said to have two senses, one of which is more proper' [1020b13]. By the latter he means the one that refers to the differentiae of substance; for he calls this quality 'first' because substance is prior to the other genera, so that for this reason the attributes of substance in itself are also prior to its other attributes,[325] and such are the differentiae, which he said are themselves qualities. He says that the quality in numbers is also part of the quality that refers to the differentiae [of substance] [1020b15], for the quality in numbers is in some way a differentia of substances, but either of substances that do not move or not of them *qua* moving. If there should in fact be, among the things that can be counted, a number of certain natures or substances that are in motion, they would be counted, but the differentiae would belong to them not inasmuch as they are certain moving substances, but inasmuch as they are a number; as if, for instance, someone were to say that some of the things that are numbered are in a plane number, others in a
401,1 solid number.[326] Hence one type of quality would be that in reference to the differentiae of substances, both those in motion and those that are immobile,[327] for it is Aristotle's practice to call mathematical objects 'substances'. According to this first meaning [of quality], it is possible to understand the differentiae in a general sense as those not only of substances but of all things that move, but to say that the differentiae of immobile mathematical objects are somehow parts of [the differentiae of substance] inasmuch as the differentia [that distinguishes] mathematical objects from one another is also among those differentiae.[328]

A second type of quality is the affections of substances in motion in virtue of which these substances move, i.e. are natural substances. To these affections in virtue of which alterations take place, Aristotle adds the differentiae of movement. By 'the differentiae of movement' he means either alteration, growth, diminution and local motion, with

the implication that these too are qualities; or the powers in virtue of which natural bodies have different movements in respect to place (these powers are heaviness and lightness); or [the differentiae] of all movement. In this last sense the states too would be qualities, for differences in movement result from the differentiae in the states. He makes it clear that this is his meaning by what he says about the virtues: 'virtue and vice are a part of the affections, for they indicate the differentiae of the movement or activity' [1020b18]. This statement shows that the states also come under the qualities said to be such as affections. He says that virtue and vice 'indicate the differentiae' of movements or activities, for things that are in motion act or are acted upon either well or badly because of the virtues and vices proper to them. For a thing is good if it is capable of moving in one way, but bad on the contrary if it moves in another way, because the states are causes, for things possessing them, of the right or wrong kind of movement. But he says that good and evil signify quality especially in reference to living things, for not every good is a quality, at least if good [is found] in the ten genera.[329] 'And of these' (he means living things) 'most of all in those that have choice' [1020b24], that is, in men: as [predicated] of living things that have choice, good and evil are virtue and vice, which, among things good [or evil], are most properly in [the category of] quality. And all the types of quality that Aristotle listed in the *Categories* can, it seems, be reduced to the affections [of mobile substances] according to this [second] meaning of 'quality', with the exception of the kind that refers to fitness (*epitêdeiotês*) as well as capacity, for he does not mention that kind [here], unless one were to include it too under the differentiae of movements: that is, under the differentiae from which differences of movement result; for as different movements occur in virtue of the states, so [they occur] in virtue of the capacities associated with fitness and the differentiae in them.[330] The result then is that both states and capacities, and moreover passive qualities and figures, come under the quality that is such by reference to the affections of substances in motion. Perhaps, however, figures should be assigned to the first meaning [of quality], for 'equilateral' itself does not indicate a movement, i.e. a certain kind of activity, of the equilateral triangle, but [rather] how this type of triangle differs from an isosceles or scalene triangle.[331] As Aristotle pointed out in the case of man, if we were asked what kind of animal man is, we would say, 'one with 402,1 feet'; so too in the case of the equilateral triangle, if we were asked what kind of triangle it is, we would say, 'one with with equal sides'.

[CHAPTER 15]

Aristotle also distinguishes things that are relative (*ta pros ti*). He says that some of them are called relative [1] as double to half, and in general as what is many times greater to what is many times less; and this meaning of relative is by reference to excess and defect, a relation that Aristotle also calls 'numerical'. Things are called relative in another way [2] as that which can heat in relation to what can be heated, and as that which can cut in relation to what can be cut; and this meaning of relative is by reference to the active and passive. [3] He gives a third meaning of relative: as the measurable is related to the measure and the knowable to knowledge and the perceptible to perception, and this meaning would come under the power of discriminating (*to kritikon*) and the object that is discriminated; for the measure discriminates what is measured, and both perception and knowledge are discriminatory powers (*kritêria*) and acts of discrimination (*kriseis*), the former of perceptible, the latter of intelligible, objects.[332]

Having established these divisions of relatives, Aristotle discusses them in turn, showing what each of them means and how they differ from one another.

> [**1020b32-3** [1] Relatives of the first kind are called numerical, either without qualification, or definitely, in relation to themselves or to one.][333]

He says, then, that relatives of the first kind (these were by reference to excess and defect) are called numerical 'either without qualification', i.e. indefinitely (*aoristôs*); he makes it clear that 'without qualification' means 'indefinitely' by adding, 'or definitely' (*hôrismenôs*). For relatives called numerical are said to be such in relation to each other, [i] if neither the one that exceeds signifies a definite excess nor the one that is exceeded a definite defect; *or* [ii] if both of them are definite relative to each other, *or* [iii] if they are said to be related to each other by reference to some one numerically definite thing.[334] Aristotle uses examples[335] to clarify the meaning of these cases. ['The double is a definite number in relation to one' 1020b33-4.] For since it is called 'double' in relation to half, and corresponds[336] to the latter numerically, the double is called 'double' in relation to a half, consequently to some thing that is also definite (for it is always relative to the half), and [thus] there is a limit to its excess.[337] So too with the half: for it is also relative to one definite thing, for the double signifies a single definite excess. Such then is the first of the numerical

relatives among things called 'relative' because of excess [and defect]: that referred to one definite thing by reference to 'one'.

> [**1020b34-5** The many times as great is numerically related to one, but not by a definite number such as this or this.]

But the 'many times as great', although it too expresses a numerical relation by reference to a definite excess[338] (for it is referred to one thing, that which is many times less), is nevertheless not referred to some definite one,[339] as in the case of the double and the half. The [two terms] do in fact express a definite correspondence to each other (that of one thing in relation to one thing, for both the many times as great and [its correlative], the many times less, are greater or less respectively than one thing and in relation to one thing), but this 'one' is not limited; indeed, there can be things that are three, four, five and more times less than that which is many times as great. So too in the case of the many times as great, whether the number it has in it is three or four or in general many times greater than the number relative to and in reference to which it is called 'greater'. For this reason these numbers are not determined by reference to 'one', but in relation to each other.[340]

> [**1021a1-2** The half again as much has a numerical relation to its correlative relative to a definite number.]

As for the half again as much, it too, like the double in relation to the 403,1 half, is said to be related to its correlative by reference to excess and defect in numbers, since [this relation] has two definite numbers. For a number half again as much is definite, because it contains some whole number plus half that number, just as its correlative, which is the whole number plus half that number, [is definite]. For in the former case too, both numbers in reference to this kind of excess were definite (indeed, they were relative to one and to a definite one), and [in] Aristotle's first example, the double and the half, like the relatives of which he is now speaking, are both definite numbers. And as a general rule, [when] the relation is expressed in numbers that are relative to a definite one, both numbers must be determined by reference to each other. For just as every half is one, so the double *qua* double is one, and the same is true of the half again as much and its correlative, so that this latter example is not intended to illustrate a different kind of correspondence than that of which the double [and the half], which Aristotle mentioned first, was an example. But because he had said that the many times as great is referred to one, but not to a definite one, and wished to show how *this* correspondence differs from that which he mentioned first, he introduced, [as] an

additional example of the same kind of correspondence, the half again as much and its correlative, saying that these correspond 'numerically, relative to a definite number', the equivalent of, '[are] a definite number relative to one'; for each of them is referred to a definite one, and this is the same as saying, 'numerically, relative to a definite number'.[341] But this is not the way in which the many times as great is described in relation to [*its* correlative], the many times less, for each of these is indeed said be in relation to one, but not to a definite one.

> [**1021a2-3** The fractionally greater is related to its correlative by an indefinite number, as the many times as great is related to one.]

Aristotle means that in the relation of the fractionally greater to its correlative,[342] each number is referred to one, but that the fractionally greater contains an indefinite excess, for although it signifies one thing and [exceeds] something that is one thing, nevertheless it does not express the ratio (*logos*) of the excess as do the double and the half again as much. Such too was the relation of the many times as great to the many times less: it was referred to one, but not to a definite one. – After saying that the fractionally greater is related to its correlative by an indefinite number, Aristotle shows that thus it is referred to one but not to a definite one by comparing it to the many times as great; for the many times as great is many times greater than something that is one, but just how large a part this 'one' is of what is many times greater than it is not determined. Hence the many times as great is referred to one in the same way as the fractionally greater, as the double in turn [was referred to one] in the same way as the half again as much.

> [**1021a3-8** That which exceeds is, numerically, totally indefinite in relation to that which is exceeded, for number is commensurable, and is not predicated of the incommensurable; but that which exceeds is, in relation to that which is exceeded, so much and something more, and this additional part is indefinite, for it is, purely as a matter of chance, either equal or unequal.]

Both the many times as great and the fractionally greater are referred to something definite, but this is not the way in which that which exceeds is related to that which is exceeded; for this kind of relation consists in a totally indefinite correspondence. For the many times as great is definite to some extent in that it contains its correlative many times, and so is the fractionally greater, for it contains both the correlative itself and several of its fractions. But 'that which exceeds'

does not signify any limit at all; for this reason it refers to an indefinite excess. Having said that what does not limit the excess has 404,1 an excess that is numerically indefinite, Aristotle adds: 'for number is commensurable' – this is equivalent to, all definite numbers are commensurable – 'but [that which exceeds] is expressed by an incommensurable number.'[343] This statement is intended to explain how 'indefinite' is predicated in reference to number. For since every definite number is commensurable (for commensurable numbers are those measured by the same measure, but the common measure of all numbers is the unit), numbers said to exceed according to an excess of this kind because they do not limit the excess are said to be expressed, in relation to each other, by an incommensurable number. The reason is this: not that, when they have been compared with each other (if they were to be compared) and [found] to be so related, they are incommensurable, but when, in being contrasted with each other, they do not limit the excess.[344] To explain the words, 'but is expressed by an incommensurable number', Aristotle adds *how* [it is expressed] by an incommensurable number: 'for that which exceeds is so much and something more, and this additional part is indefinite' [1021a6-7]; for whether it becomes greater or less, it preserves the same relation – this is what he means by 'is either equal or unequal'. For what is taken a second time can be equal to that which was taken before, exceeding but being proportionately equal, so that the excess in both is threefold,[345] or [it can be] unequal; 'but this is indefinite'. Perhaps Aristotle says, 'numerically indefinite in general' [1021a4], to point out that just because something is numerical in a general way, it is not [thereby] made definite;[346] and this is proved by the words, 'they are predicated by an incommensurable number'.[347] The term 'indefinite' is applied to this kind of excess because none of the numbers related to each other in this way is commensurable.[348] – Or the words, 'for number is commensurable', may point to the fact that, on the one hand, a *number* exceeding by some definite amount does so by a commensurable number (the superparticular number in fact exceeds [its correlative], the subsuperparticular number, by a fraction); but that in the case of a *thing* that exceeds [the excess] is not determined.[349] For a thing that exceeds is as large as the one exceeded 'and something more', and the 'something more' is indefinite; for this 'something more' by which that which exceeds does so can be *equal* to that which is exceeded (for the double too exceeds, since it is 'as much and something more' [than the half] and its 'something more' is equal to that which is exceeded);[350] but the 'something more' can also be *less* [than what is exceeded]. Consequently, it is impossible to determine by what exact amount [a thing of this kind] exceeds, whether, [that is], by an equal or a lesser amount; the fractionally

greater is an example of the latter, for [it exceeds] by a part less [than its correlative].

After showing how the relatives called such by reference to excess and defect are expressed numerically, Aristotle says that they are all said to be relatives in respect to a number and to certain affections of numbers; for the double and half, and that which is many times greater and that which is many times less and relatives of this sort [are] affections of numbers and thus quantities, as he said shortly before in giving the divisions of quantity. – And further, he says, there is another way in which things are called numerically relative, not, as in the first case, by reference to excess and defect, but by reference to likeness and equality. He shows that things said to be similar or equal to another are also called numerical [relatives] on the assumption that they are referred to 'one'.[351] For the equal and similar and same are referred to one: this is because they are one with respect to each other.[352] He says, 'for they are all referred to one:' because, by their being compared in such a way that both are one with respect to each other, their correspondence, i.e. relation, [turns out to be] of this sort.[353] But how can he possibly say that both of them are one? 'Those things are *the same* whose *substance* is one' [1021a11], for they are alike with respect to their substance. (If the same thing is said to be the same as itself, the one thing is being taken as two.)[354] Hence sameness is a kind of unity with respect to substance. 'Those things are *alike* whose *quality* is one', for (as Aristotle says in the *Categories*) like things are found only in [the genus of] quality;[355] so that likeness too is unity in quality. 'Those things are *equal* whose *quantity* is one.' All things, in fact, that correspond to each other as being the same, or alike, or equal correspond by reference to their being a kind of 'one'. Assuming this to be the case, Aristotle shows that a relation, i.e. correspondence, of this sort is numerical, since he makes the prior assumption that one is the beginning and measure of number. As a result, those relatives too that correspond by reference to one, since they correspond by reference to the beginning and measure of number, would correspond numerically. They are not, however, numerical [relatives] in the same way as those first mentioned, for *they* [were numerical] by reference to the excess in number, whereas *these* are such by reference to equality and unity.

After this discussion of relatives that correspond by reference to number, Aristotle goes on to deal [2] with those that are opposed by reference to activity and passivity, that is, to acting and being acted on. Thus things are called active or passive in virtue of a capacity,[356] but it is in virtue of actuations[357] [proceeding] from their capacities that they act or are acted on. After giving examples to show which relatives are called such in virtue of potentiality and which in virtue of actuation,[358] he adds that this division [of relatives by reference to

acting and being acted on] is not included in the way in which they correspond by reference to number because numbers have no activities, for the objects of mathematics are motionless. The words, 'except in the way that has been stated elsewhere' [1021a19] might mean that inasmuch as numbers are objects of thought, they could be said to have actuations, but actuations of a kind that have nothing to do with motion, since the cognitive power, at least insofar as it thinks, does not move, nor does the object of its thinking. And this is indeed an actuation[359] of the object of thought, but not one that involves motion; just as in the case of things [whose actuation comes about] through motion, there is an actuation of the patient and not only of the agent. Or [the explanation might be] that numbers themselves do not have actuations (for numbers, as such, neither act nor are acted on, as the Pythagoreans imagined that they do), but that, nevertheless, the *things* that act or are acted on in accordance with the numerical excess or equality they have in relation to each other do so by means of a mathematical proportion. For it is not every chance agent that produces an effect, nor one in any condition whatever, but there must be a proportion between the agent and that on which it acts, and this proportion is to a certain extent numerical; medicines, for instance, are effective because of a certain kind and quantity of excess [in the mixture], for the drugs that happen to be [in the 406,1
compound] do not effect a cure simply because of their [medicinal] properties, but they must also be present in the [right] quantities to accomplish this. And this same explanation applies to the other bodies that act or are acted on.[360]

Aristotle remarks that among things called relative to each other in virtue of an active or passive capacity, i.e. in virtue of their capacity to act or to be acted on, some also imply a reference to *time*; for that which *has* produced something is related to what *has been* produced (what heated, for instance, is related to what was heated, and similarly [one who built a house] to the house that was built); and that which *will* produce is related to the thing that *will be* produced. In fact, he says, a father is called [father] of his son by reference to time, for because the one has generated the other has been generated, and to have generated and been generated is an instance of having produced and been produced. He calls 'potential' (*kata dunamin*) [relatives] things that have already come into being, because [the agents that produced them] are no longer regarded as acting.[361] Or perhaps he means that relatives opposed through their acting and being acted on are opposed 'by virtue of a capacity' in a general way, no matter at what [period of] time their opposition is assumed [to exist].[362] He says that some things are called relative in virtue of the privation of a capacity[363] as well in virtue of a capacity. For that which is capable of heating is relative to what is capable of being heated,

and that which cannot be seen or cut [is relative] in virtue of a privation, since that which is incapable of being seen is relative to what is incapable of seeing, and that which is incapable of being torn apart to what is incapable of rending asunder, for what cannot be seen is that of which there is no seeing, and there is no seeing of what cannot be seen. Hence all things called relative in this way would be so called in virtue of the privation of a capacity, for the incapable is incapable by reason of an incapacity, and an incapacity is the incapacity of the incapable.

Having dealt with things called 'relative' by reference to number (such were those that he first discussed) and with those that are relative in virtue of a capacity (those were the relatives that are opposed because of their being active or passive in relation to each other), Aristotle adds that all these are called relative in this way 'because' each of them 'is said to be just what it is *of* something else',[364] not because something else is referred to it [1021a28-9]. He intends to point out to us how relatives of the two types that have already been discussed differ from these relatives [3] defined as being such[365] by reference to that which discriminates and is discriminated, as knowledge and sense perception and measure and thought and opinion and judgement were said to be [relative]. The difference of which he is speaking is this: the fact that in the first two types of relation each of the two correspondents was said to be just what it was *of* that thing (*ekeinou*) to which it corresponded. (When he says *ekeinou* (of that thing),[366] he is not referring to the *case* of the word, since [a thing is not called] 'like' or 'equal' or 'identical' (terms that express a numerical relation)[367] *of* but *to* what is like or equal or identical [to it].) But what he means is that [in the case of relations of the first two types, each of the two relatives] is called the thing that it is either *of* or *to* the other, or is referred to it in some other way, whereas things that discriminate and are discriminated are not related in this way. For the things that discriminate are indeed said to be the things that they are *of* others, i.e. of those that are discriminated; for perception is of objects that are perceptible, knowledge of those that are knowable, measure of those that are measured, thought of those that are thinkable, and intuition (*nous*) of those that are intelligible. But the objects that are discriminated are not said to be the things that they are *of* those that discriminate them, nor are they relative inasmuch
407,1 as *they* are *of* others, but inasmuch as others are *of them*. For things are perceptible not because they are of others, but because something else is of them (for the fact that there is perception of them is the reason they are perceptible), and they are knowable because another thing, namely knowledge, is of them.[368] For,[369] although in saying that one thing is similar *to* another we use the [same] case as when we say that something is knowable *by* knowledge or perceptible *by*

perception (for both ideas are expressed by the dative case), none the less the [two] statements are not the same. For it is because one thing [A] is like another [B] that it is called 'like' the other, not because the latter [B] is like the former [A], even though it is certainly true that the latter [B] is likewise referred to the former [A];[370] and this holds for 'equal' and 'same'. But the perceptible is said to be perceptible *by* perception not because it is the thing that it is *of* perception, but because that thing, [perception], to which it is referred[371] is of it. For because there is perception of it, the perceptible is said to be perceptible by perception, [just as] 'the visible' signifies that there is sight of it. In much the same way, the orderly arrangement of parts (*harmonia*) could be said to be related to the parts that are so arranged, for the arrangement is *of* these parts, and the parts are ordered *by* the arrangement because the arrangement is of them, as in the case of things that are knowable, knowledge [is of them].[372]

> **1021a32** The thought is not relative to that of which [or, of whom] it is the thought.[373]

Aristotle has said that in the case of things called 'relative' as that which discriminates and that which is discriminated, the one discriminated is referred to the one that discriminates in such a way that the latter is *of* the former: what discriminates, that is, is *of* what is discriminated, which cannot[374] be referred to what discriminates in the same way as the latter is referred to *it*. Now he shows that these things, knowledge and perception and measure and any others of the same kind, are called 'relative' by reference to their objects:[375] knowledge by reference to things that are knowable, perception by reference to those that are perceptible, opinion by reference to the objects of opinion; but [that they are not called 'relative'] by reference to the things *in* which they are, [as would be the case if] knowledge were referred to what possesses knowledge,[376] perception to what possesses perception, and so in the other cases. By showing this, he makes [more] credible his statement that among relatives, there are also some that are called 'relative' in this way: because the things to which they are referred are *of these* things, [i.e.] the ones referred to them;[377] for things that are discriminated are [relatives] of this kind, and it is thus that they are referred to the things that discriminate them. Aristotle shows that knowledge is referred to things that are knowable and not to the knower by pointing out that [to say the latter] would be to say the same thing twice. A little later he explains how this is the case when he says:

> Similarly, sight is also the sight of something, not of that of which it is sight (although it is of course true to say this), but it is relative to colour

> or something else of that sort; but if we state the matter in the other way, we shall be saying the same thing twice: 'sight is of that which it is sight' [1021b2-3].

What he means is that if we say that sight and knowledge and 408,1 things of this sort are *of* certain other things, e.g. that knowledge is of things that are knowable or that sight is of those that are visible, our statement will not turn out to be absurd,[378] for the reasonable answer to the question, 'What is the *object* of knowledge?'[379] is, 'The thing that is knowable.' But if someone were to assume that knowledge is referred, not to that which is knowable, but to the one to whom it belongs and *in* whom it is, i.e. to the one who possesses it, his answer to the question, 'What is it that *has* knowledge?' would be, 'The one to whom knowledge belongs', since he took the position that knowledge is referred to that which has it. But stated thus, the answer is absurd, and the same thing is being said twice.[380]

To this it might objected, however, that if things such as knowledge are not referred to the things in which they are because the result is that the same thing is said twice, then none of the other things that are in something should be referred to that in which it is. But there seem to be many relatives that are referred to the things in which they are; the orderly arrangement of parts, for instance, is said to be of the parts that are so arranged, and the arrangement is not in anything other than the assembled parts to which it belongs, and it is referred to them. A state too is called the state of that which has it, in which it also exists. And should someone wish to put a similar question about these cases, the same thing will [again] be said twice; for the sound answer to a questioner who asks, 'What is it of which there is an orderly arrangement of parts?' is, 'That which has such an arrangement', at least if the orderly arrangement of parts is in fact referred to that of which it is the arrangement: for it is referred to the congruent parts of which it is the arrangement. The fact that [some relatives] are referred to the things in which they are [is confirmed] by what Theophrastus says in Book 2 of his *Topics*:

> for each particular thing belongs to that of which it is predicated, as do proportion and state and composition; but memory and sleep and judgement belong to nothing inanimate, nor does the movement of one thing belong to another; each particular instance, therefore, must be determined separately.[381]

And Aristotle himself has this to say about the present subject in Book 5 of the of the *Topics*:

> Some relative terms are of necessity found in, or used about, those

> things in relation to which they happen at any time to be said, e.g. disposition or state or proportion, since things of this sort cannot possibly belong to anything other than that to which they are referred. Other relative terms do not necessarily exist in the things in relation to which they are used at any particular time, although they can so exist, e.g. if the soul were to be an object of knowledge, for nothing prevents the soul from possessing knowledge of itself, but this is not necessary, since it is possible for the same knowledge to exist in another. Still other relative terms simply cannot exist in the things in relation to which they happen to be used at any particular time; the contrary, e.g., cannot exist in its contrary nor knowledge in the thing known, unless the thing known should happen to be a soul or a man [*Top.* 125a33ff.].

Thus he declares that some relatives must necessarily be referred to the things in which they are, mentioning specifically 'disposition' (*diathesis*) (for this is the disposition of the thing disposed, which is also that in which the disposition is) and 'state' (for state is the state of the thing that has it); and 'proportion' (*summetria*) too is another such relative. But if each of these relatives is referred to the thing in which it is, the same thing will be said twice in each case. 'What is it of which disposition is?' 'That of which it is the disposition.' 'What is that of which state is?' 'That of which it is the state.' So too with proportion. If, therefore, the same thing is being said twice in the case of these relatives, but they must necessarily be referred to the things in which they are, perhaps Aristotle's remark about saying the same thing twice should not be understood as condemning the referral of something to that in which it is. For if a thing is said twice in the sense that the same thing is referred to itself, an absurdity would of course result, since in this case the same thing would be opposed to itself, on the supposition that relatives are referred to their opposites. But if, in answer to the question, 'What is that of which knowledge is?' the respondent says that knowledge is of that to which it belongs, which is true, but does not say that it is also *referred* to that thing (for since he was not asked, 'To what is knowledge referred?' he did not direct his answer to the object of knowledge but to the one who possesses it); and if, when a second question is put to him, 'To what is the one who possesses knowledge referred?' he anwers, 'To knowledge', this would not be a case in which the same thing is referred to itself, at least if knowledge is one thing and its possessor another. It would seem likely, in fact, that in stating his objection [that the same thing is being said twice], Aristotle's purpose was not to deny that something can be referred to that in which it is, but rather to use that statement to justify the fact that, in those cases in which things existing in certain things *can* be referred to certain other

things beyond those in which they exist, he himself attributes them to these others.[382]

But we might ask whether there is not a similar relationship in the case of relatives that are referred to each other in virtue of a capacity, [so that] the second of them, the one that corresponds to the other as the patient to the agent or producer, is referred to the latter in this way: because the agent is of it, but not *vice versa*.[383] For what can be burned is flammable because there is something capable of igniting it, and what can be heated is such because there is something capable of heating it; and each of these is said to be just what it is *of* another, for the flammable is flammable because of that which is capable of igniting it, and the perceptible is the sort of thing that it is because that which perceives is of it.[384] – Or perhaps Aristotle says this[385] because he wishes to show what it is to which things called relative in this way are referred. For it is obvious that relatives that are such in virtue of an [active] capacity are referred to their [correlatives, the flammable, the perceptible, etc.],[386] and the question was not to what these relatives are referred, but Aristotle was asking about things called relative as those that discriminate: to what are *they* referred? whether, for instance, the act of perceiving is referred to what possesses perception or to the perceptible object. Hence he showed that all relatives of this sort are referred, not to the things that possess [knowledge or perception], but to the [knowable or perceptible] objects. This he did by showing that the things corresponding to [knowledge and perception] must be referred to the latter in this way: because, that is, the former, [knowledge and perception], have these, [the knowable and perceptible], as their objects.[387] For even though it is true that these objects are said to be just what they are *of* other things or that they are related to another in some way (for this is the case with *all* relatives), nevertheless the things referred to those that discriminate must be called [relatives] in this way: because, that is, those that discriminate have them as their objects;[388] but this would not be the case if knowledge and the other things of this sort were referred to what possesses them.

Aristotle says [in conclusion] that of relatives that are such in themselves, 'some are so called in this way' (obviously either because they are said to be just what they are of other things, or because they are the *objects of* other things), 'but others if their genera are' relative [1021b3-5]; for the science of medicine is relative because its genus, scientific knowledge, is relative. He made this point in the *Categories*;[389] for a thing whose genus is relative would no longer be called an accidental relative, but would itself be relative in its own right, although not in the same way as its genus; for because the genus is in the species, the species too becomes a relative, since it has in its essence (*ousia*) that which is a relative, on the assumption that the

genus is part of the essence of the species. – Further, he says, as things possessing certain [attributes] are relative, so their attributes are also relative in this respect; for equality is relative because the equal, that which possesses equality, is relative, and likeness because the like [is relative]: for equality and likeness are also relative in this respect. But those things are accidental relatives to which, although they themselves are not relative, some relative happens to belong; for a man is called relative if the double, a relative, happens to belong to him. Again, the white would itself be called an accidental relative if it should happen to be an accident of something that happens to be double. But this latter way [of being] relative differs from the one previously described, for in that case it was the subject that was called relative because of its accident, whereas here one of the accidents belonging to the subject is called relative because of another accident [of the same subject].

[CHAPTER 16]

Aristotle also discusses 'the complete' (*to teleion*),[390] distinguishing its meanings as follows. [1] A thing [is complete] none of whose parts is missing, for each thing is called 'complete' when not even one of the parts contributing to its completion is missing. In this way the *time* of each thing is complete if no part of the time said to belong to it is missing and none of its time is outside it. For if we take time in its entirety, there is [always] some time outside it,[391] but if we take the limited period of time belonging to this particular thing, its time will be complete at the moment when no portion of the time in which it exists is missing. Thus if the time of a thing's existence were 100 years – if a man for instance, had that much time as his total lifespan – then the man's time would be complete if none of the 100 years were missing. In this way a man or a horse are also complete[392] if none of their parts is missing, and a statue is complete, just as are all the other things that lack none of their parts.

Similarly, those things are also called 'complete' [2] that are not surpassed in their genus with respect to the excellence (*aretê*) and the goodness (*to eu*) proper [to that genus] (here Aristotle is using the word *aretê* ['virtue'] in a somewhat general sense). For each thing is called complete when it has its proper excellence, as a man is complete if he is deficient in none of the [qualities] that are consistent with the excellence of man, and if he is not surpassed in the goodness that belongs to man. Aristotle says that a doctor too is complete in this way if he is not surpassed with respect to the goodness of the medical art that [can exist] in man. He explains the meaning of the phrase, 'relative to their genus', by saying, 'when they lack nothing with

respect to the form of their proper excellence' [1021b16]. For since there are many and different excellences, that man is complete with respect to the excellence that is his when he lacks nothing that pertains to that excellence.[393] (He uses the word genus (*genos*) instead of kind (*eidos*).) A flute-player too is complete who is such with respect to the art of flute-playing, and in general a person is complete with respect to a particular art or science or virtue (*aretê*) if he is not 411,1 inferior [to anyone] in that respect. But we transfer the term 'complete' from things that are complete in this way (i.e. as being unsurpassed in goodness) to evil things as well; for we speak of a complete scandalmonger and a complete thief, in the sense that such men are unexcelled in what they do. We make this [same] transference when we call them 'good', i.e. complete, robbers, for in speaking of them thus we mean that they possess an excellence for deeds of this sort and are complete practitioners of their trade; for the excellence proper to each thing is its completion.[394] 'For', he says, 'each thing is complete at the moment when, with respect to the form of its proper excellence, no portion of the magnitude' that is natural to it 'is lacking' [1021b21-3]. By 'with respect to the form of its proper excellence', he means that [each thing is complete] when no portion of the excellence proper to the species[395] to which it belongs is lacking, [no portion, that is] 'of its natural magnitude', since a man is complete if he is deficient in no aspect of human excellence. For a man is complete, not when he is perfect (*artios*) in his [bodily] parts,[396] but when he lacks no portion of human excellence; and so it is with a horse or dog or any existent. And thus Aristotle's definition of what is complete in this way would be that the complete is that which, 'with respect to the form of its proper excellence, lacks no portion of its natural magnitude'; for it must not be deficient in any portion of the completeness that pertains to its natural magnitude. – The things first mentioned are complete by reference to quantity, whereas those of the second type are such by reference to goodness, i.e. quality.

Aristotle says that those things are also complete [3] that possess their proper end, [one that is][397] good (*spoudaios*); for a thing is complete because it possesses its end, but the end, in the primary sense of that term, is something good. Thus a good man is complete because he possesses his proper end, which is good. And the difference between things called complete in this [third] sense and those mentioned just before is that the latter were said to be complete because they are in a perfect [state] (for this is what excellence is), not because they have achieved their end, while those of which he is now speaking [are complete] because they have achieved their end.[398] Perhaps, however, Aristotle did not introduce this [third type] with the intention of indicating that it is a different kind of completeness [than the second type]; hence, when he begins to discuss this type of complete

things, he does not mention it as if it were an addition to the one that precedes it.[399] But since what possesses its end is complete, and the end is ultimate, we say as a consequence that things in their ultimate stage are 'at the end'; therefore we apply this meaning of complete even to bad things, saying that a person 'has been completely ruined and completely corrupted' [1021b26] when he is at the ultimate point of evil and is not deficient in any aspect of corruption. – Death (*teleutê*) too is said to be an end in this sense, since the end is also ultimate, and we call what is ultimate an 'end' (but the ultimate end is the good, i.e. the final cause).[400] Hence too [the poet says], 'He has the end for the sake of which he was born' [*Phys.* 195a31]. Not so, however: the consequence of this is fallacious,[401] since an end, at least the end that is such in the primary sense, is ultimate in the way the final cause is. By the words, 'but the ultimate final cause is an end', Aristotle means that an end in the primary sense is ultimate as the final cause is. Or else, since he has said that both things, [death and end], are ultimate (for death too is something ultimate), he adds that both the end and the final cause are themselves ultimate.[402]

He says that all the things that have just been described as complete, those that are such in themselves, can be reduced to two meanings. In one sense, those things are complete that lack nothing 412,1
with respect to goodness and that are not surpassed, so that nothing can be found outside them that, were it present, would increase the goodness in them. In fact, 'things that have attained their end, if this is good', can also be included under this meaning of complete.[403] And the complete in this sense of the term is said to be such by reference to excellence and the total presence of the good; but in the second sense (the meaning that Aristotle listed first) [a thing is complete] because it is absolutely unsurpassed in its proper genus and none of its parts is outside it or missing – to illustrate this kind of completeness he gave the example of complete time.[404] In this way a man is complete if none of his parts is missing, and similarly (as he said before) a house or a horse or a bench or a chair.

These, then, are the meanings of 'complete' inasmuch as things are complete in themselves, but, he says, the other things called complete are said to be such by derivation from those [that are complete in themselves]. For [some things are complete] because they produce an effect of this sort, as education (*paideia*) is something complete because it produces a complete person, i.e. the one who possesses excellence; and athletic exercises as well, because they produce good health, which is a completeness. Other things are called complete because they possess something of this sort: thus we call a book complete if none of the things that ought to have been written in it is missing, and a treatise complete if it omits nothing. Still other things are complete because they fit complete things; clothes and shoes are

complete in this way, or a suit of armour, and the Pelian spear was complete because only Achilles, since he was complete, was able to wield it. And things are complete if they are adapted to what is complete with respect to goodness; thus a complete activity is one suitable to a man of serious purpose (*spoudaios*), such as the activity of the philosopher. Or, he says, things are said to be complete in some way or other if they are referred to things called complete in the primary sense, as an athletic exercise is called complete if it is one that the complete contestant would perform.

[CHAPTER 17]

Aristotle says that 'limit' (*peras*) means [1] 'the terminus (*to eskhaton*) of each thing'.[405] In this sense even death would be called a limit, for the terminal [moment] that supervenes upon[406] each thing is its limit. (Thus there is also said to be a limit of movement and action.) For such[407] is 'the first thing outside which it is impossible to find anything', since, if there remains something outside that which is taken as a terminus, the latter is not a limit. He adds 'the first thing' to indicate the limit that is such in the primary sense, one that is a limit not as a part but as what is properly a terminus: the sort of thing that surface is in the case of bodies. For it is possible that there should be nothing outside a certain part that is taken as a terminus, but this part would not be first, since [the limit] itself is prior to it.[408] It might appear, however, that by this definition Aristotle is defining limit in the same way as he did in the first definition, where he said that limit is 'the terminus of each thing', so that, although the definitions are different, the thing being defined would be the same; but this is not the case. For as it was first defined, limit not only did not belong to the very thing whose terminus it was, but it was even the termination that supervenes upon each thing, whereas what is now called a limit belongs to the thing itself.[409] Moreover, the word 'terminus' can refer
413,1 to a part, but the second definition that Aristotle gives cannot be applied to a part, but [only] to a limit that is such in the primary sense, as I have already explained. And 'terminus' could be applied even to things that are not magnitudes; there would in fact be a terminus of a speech, and of action and thought as well.[410] It is in this sense, as I said, that even death is called a limit, for it is the termination of the life of a living thing. But *this* [definition], 'the first thing outside which it is impossible to find anything', seems applicable only to magnitudes, for in a magnitude it is possible to find something that is the first thing outside which there is nothing: in a body, that first thing is the surface, in a surface, the line, and in a line, the point.[411] But the words, 'outside which it is impossible to find

anything', had a different meaning in reference to the complete than they do in reference to limit. For in reference to the complete they signified a thing none of whose parts is missing[412] (for 'complete' meant what is taken in its entirety), and something is complete in the sense that it is a whole, with no part outside it,[413] whereas in reference to limit [the words quoted signify] that outside which there is nothing that further limits the thing of which it is a limit. Or perhaps the word 'first' has a different meaning when it is taken in conjunction with limit, because even the incomplete has a limit.[414] – Aristotle also says that a limit is 'the first thing within which everything is', by which he means the same thing of which he spoke previously viewed from the opposite perspective (for then he said, 'the first thing outside which there is nothing', but now he says, 'the first thing within which everything is). He again adds 'the first thing' in order to distinguish the limit that is such in the primary sense from the part, since the other parts [of a thing] are also within those parts[415] that are at its outer extremities, but these latter parts are not first; for in the case of a body, the very part that is taken as last is within the surface, while the surface is not within anything. But 'the first thing outside which it is impossible to find anything' is, as I said, the same as 'the first thing within which everything is'.

Aristotle says that limit is also [2] 'whatever is the form of a magnitude or of a thing possessing magnitude' [1022a5-6] – by 'form' he means the figure (*skhêma*) and the shape (*morphê*), for it is in virtue of these that bodies acquire their form. He uses the term 'magnitude' instead of 'body', for every figure is in a body; but he adds the words, 'or of a thing possessing magnitude', because of living things, which, although they are not bodies or magnitudes in the unqualified sense, nevertheless have a body, i.e. a magnitude, and the shape peculiar to each of them is their form (as that term is used here) or their limit, whereas figures [are the form or limit] of bodies.[416] And [thus] by his first definition of limit Aristotle would mean that surface is the limit of body, but according to the present definition he means that figure is the limit.

He says that limit also means [3] 'the end (*telos*) of each thing', that for the sake of which, for it is this 'towards which movement and action are directed' [1022a6-7], since that for the sake of which movement and action [began] and at which they ceased is a limit. (In this sense, death is not a limit, because things do not come into being for its sake, although it is their termination.) After saying that limit is, 'that towards which movement and action are directed', he adds, 'but not that from which they are', for that from which movement proceeds is a beginning. But sometimes, he says, both are called limits, i.e. both that from which and that towards which [movement proceeds]; indeed, a beginning such as this is itself sometimes called

a limit as well. And this would be the limit of the calculation (*dialogismos*) about what is to be done, for having begun from the end (*telos*), we stop [deliberating] at this final point, which becomes the
414,1 beginning of the action; so that the beginning of any action is the limit of our calculation.[417] And thus, by the words ['but sometimes both'] Aristotle would have been pointing out that both the end and what produces it are a beginning and a limit: the limit of calculation but the beginning of action.[418]

But Aristotle said there that the beginning is called a limit; he made this clear by the words, 'and that from which', to which he added, 'and that towards which' (for it was postulated that this latter too [is a limit].) Then he explained the meaning of 'that towards which' by adding, 'and that for the sake of which'[419] (for it is this towards which [action] is directed.) Now he goes on to show that the term 'limit' has all the meanings in which 'beginning' is used. For he says that limit also means [4] the form (*eidos*)[420] in virtue of which a thing is [what it is], without reference to its figure or shape;[421] and he adds an explanation of how limit is form. For the fact that man is rational mortal animal is not simply a limit of man, but of [our] knowledge of man; and [the essence][422] is likewise the limit of our knowledge of each thing, for as soon as we know this, we stop asking the question, 'What is this thing?' But if [essence] is the limit of knowledge, then of the thing as well, for as the thing is, so the knowledge of it comes to be. 'But it is obvious', he says, 'that "limit" has as many senses as "beginning" ', adding, 'and even more' [1022a10]. He has in fact said that limit means beginning as end, and as form, and as that from which is the beginning of movement, but the beginning said to be such as matter is[423] would also be a limit because matter is the ultimate substrate, and what is ultimate is called a limit. But it is clear from what Aristotle has previously said about limit that it has not only four meanings but other meanings that cannot be equated with 'beginning': for [it was said to be] the termination of each thing, as death is, and the first thing outside which it is impossible to find anything, as surface [is the limit] of body, and even the figure [of a magnitude]. None of these meanings, however, is the same as any of the limits said to be such as causes; hence Aristotle has good reason for saying, 'for beginning is a limit, but not every limit is a beginning' [1022a12] – he is referring [to limit as] cause.

[CHAPTER 18]

Aristotle also lists the meanings of 'that in virtue of which' (*to kath' ho*).[424] He says that it means [1] the substance, i.e. the form, for each thing is said to be that which it is in virtue of its form, which he also calls 'substance'. For the statue is a statue in virtue of its form, and similarly man is man and horse is horse in virtue of their forms. And if a person has the good in his substance, his form is the good in the primary sense, [since] 'good' is that in virtue of which a good man is good. He says, 'good itself', instead of 'that in virtue of which a man is good is good itself',[425] for the good man is good in virtue of nothing except the good and the substance of the good.

He says that 'that in virtue of which' means [2] the proximate (*prôtos*) subject in which something naturally comes to be [1022a16], for [an attribute] is said to exist in virtue of its subject. The body, for instance, is said to be coloured in virtue of its surface, because the surface is the first (*prôtos*) recipient of colour.[426] After stating that 'in virtue of which' means in virtue of the form or substance, to which he added in virtue of the first recipient as well, Aristotle says that in the proper and primary sense, 'that in virtue of which' is the form, for each existent has its being in virtue of its form, but secondarily too in virtue of its matter and proximate substrate,[427] which he called 'the first recipient'; for colour is in in the surface as in a proximate matter. For each of the things that exist, whether naturally or through art, exists and is said 'to be' not only in virtue of its form but in virtue of its matter as well; thus the man is said to be a man not only in virtue of his form but also in virtue of the matter that underlies his form, and a statue is a statue not only in virtue of the form but also in virtue of the bronze; and this is the case with every composite substance. Aristotle probably includes even the first recipient under [the term] 'matter', for he is speaking of matter in a general sense [as] the proximate subject in which something inheres as in a substrate. And the surface is the proximate subject in which colour inheres, and [thus] surface would be analogous to matter, but colour to form.

Having stated that 'that in virtue of which' refers to both the form and the matter, Aristotle says that in general 'that in virtue of which' is and is predicated[428] [3] in as many ways as 'cause', for in each case that in virtue of which something exists is called a cause. And he shows this first by the fact that ['in virtue of'] has the same meaning as the final cause. For we say, 'In virtue of what has he come?' instead of, 'For what purpose (*tinos kharin*) has he come?' For if, in reply to a questioner who asks in virtue of what someone has come, we state his purpose in coming, e.g. that he came to collect money, we make the right answer, [since] the one who said, 'In virtue of what has he

come?' was asking about that in virtue of which.[429] But one who asked in virtue of what the Trojan War came about was inquiring about the source from which that war originated, and this is again a cause, the one from which is the beginning of movement; for when [the respondent] says that it was because of the rape of Helen, he has pointed out that in virtue of which [the war broke out]. Aristotle has already said that 'that in virtue of which' refers to both the formal and the material cause, but he adds an example that indicates the productive cause. For one who asks, 'In virtue of what did he reach the wrong conclusion?' wishes to learn the productive cause; for he expects to learn what it was that produced either the wrong conclusion or a valid argument.

He says that in addition to the senses that have been mentioned, the phrase 'at which'[430] signifies a particular position or place; that is, [it answers] the question, 'Where?' For one who asks at what place in Athens this statue stands, for instance the statue of Aristotle, wishes to learn where and in what part of the city it is located. So too, one who asks at what place you take your walks expects to learn in what part or district of the city you walk, whether in the Lyceum or the Potters' Quarter.

Now that he has stated and shown that 'that in virtue of which' is expressed in various ways, Aristotle says that for this reason 'that in virtue of itself' (*to kath' hauto*)[431] must also be expressed in various ways. For what belongs in virtue of itself [is also] 'in virtue of which',[432] and something belongs in virtue of itself to that to which it belongs in the primary way; for 'that in virtue of which' is predicated in reference to one of the things that belong in virtue of themselves. 416,1 'That in virtue of itself' will therefore mean [1] the essence of each thing, i.e. its form, for the form proper to each thing and the formula that manifests its substance belong to it in virtue of themselves, for Callias is Callias in virtue of himself. And [2] 'whatever things' are included 'in the essence' [1022a27] belong in virtue of themselves to the things of which they are the definition. These are the genus and the differentiae, and consequently each of these belongs to Callias in virtue of itself because they are parts of his form.

He says that another meaning of 'in virtue of itself' is [3] that a thing be, either in itself or in something that belongs to it,[433] the first to receive [an attribute], for the surface is coloured in virtue of itself because it is the first recipient of colour, as Aristotle said when speaking about that in virtue of which; and what is 'in virtue of' in this way would be such in virtue of matter. The body too is itself coloured in virtue of its surface, whereas the surface [is coloured] in virtue of itself; but because the surface, which is the first and *per se* recipient of colour, belongs to the body, the body too is for this reason coloured in virtue of itself. For it was not only the thing that is in

itself the first recipient that was a *per se* recipient, but [a thing was such] if anything belonging to it were the first recipient of something, and the surface is limit of the body. For the reason why an animal lives in virtue of itself is this: that the soul, which is part of the animal, possesses life (*to zên*) directly;[434] 'for the man lives in virtue of himself' [1022a31] because life (*zôê*) is in his primary part, for life (*to zên*) is in the soul directly, and the soul is part of the man. This meaning [of 'in virtue of itself'] would also apply to matter, for that which is a part in a thing has the status of matter.[435] (Elsewhere, however, Aristotle calls the direct recipient of an attribute [a recipient] in virtue of itself, but one [that receives an attribute] in virtue of a part an accidental [recipient].)[436]

He says that 'in virtue of itself' also means [4] 'that which has no other cause' [1022a33], and he explains what this means by adding an example. For there are many causes of the fact that the man exists – his form, his matter, and each of the constituents in his definition, and moreover the cause that produced him – but there is no cause, outside [the man himself], of the fact that the man is a man. For if one has been asked *why* the man is a man, he can make no other answer than, 'Because he is a man'.

[5] Again, he says [those attributes] belong in virtue of themselves that belong to the thing alone and to it *qua* alone [1022b35]. By this he would mean the properties [*ta idia*], which belong in virtue of themselves to certain things. He indicates the definition of properties by saying that they belong 'to the thing alone and to it *qua* alone',[437] for '*qua* alone' signifies that [a property] belongs to every instance [of the subject][438] (it does not belong to this instance but not to that);[439] therefore, what belongs to the subject alone and to its every instance is a property of the subject even though it is not its essence. For because it is limited and belongs in a limited way,[440] and does not belong to this instance but not to that, nor at one time but not at another, nor to something else in addition to *this* thing, what belongs in this way [belongs] in virtue of itself. Thus even its uniqueness is indicative of [an attribute] that belongs in virtue of itself, for what belongs to only one thing is thought to belong to that thing in virtue of itself. But the words, 'hence that which is separated [is] in virtue 417,1 of itself',[441] are intended to show that the reason why such [attributes] are in virtue of themselves is that they belong in a limited way [and] only to these subjects. – This text is also written, 'hence to be coloured is in virtue of itself', and the word that is missing would be, 'to the surface'; for 'in virtue of itself' is said in reference to the surface.[442]

[CHAPTER 19]

Aristotle says that 'disposition' (*diathesis*)[443] too is expressed in various ways, for disposition signifies a certain arrangement (*taxis*) of the parts in a thing that has parts. There is disposition [1] in respect to place and position; this would be disposition in the case of things that have been assembled, i.e. of those that are in a place, as when we say that a military camp is well arranged because the cavalry is located in one section and the foot soldiers in another, or [speak of] the disposition of a house [as] the position and spatial arrangement of its parts. There is a disposition [2] in respect to power (*dunamis*), as in the case of the parts of the soul; for the power of one of these parts, the nutritive power, is first, and that [of another part], the sensitive power, is second. There is disposition [3] in respect to the form, i.e. the shape, as when we speak of the disposition of a statue or image.[444] But what he says next, 'for it must be some kind of position (*thesis*), as the very word "disposition" shows' [1022b2], seems to refer properly to the spatial arrangement of parts and to arrangement in respect to form, but not to arrangement in respect to powers. The powers might, however, be said to have position in a general way, or by accident, for because the things to which the powers belong have position, the disposition that is such in respect to form[445] would also be one of position, but by accident. But position, as we said in the *Categories*, is [found] among parts that are permanent relative to one another,[446] and this is the case with disposition in respect to the powers and the forms.

[CHAPTER 20]

Aristotle also [distinguishes the meanings] of 'having' (*hexis*).[447] He says that it is [1] 'a kind of activity of one who has and of what is had' [1022b4-5], for the activity of both, of the one who has and of what is had, [that exists] when the one having has, actually and not potentially, what he possesses, and the thing possessed is likewise had in actuality,[448] is a having since it is an activity of possessor and possessed. Thus the having of a tunic or cloak takes its name from the verb 'to have', being, as it were, a kind of 'holding' (*ekhêsis*);[449] for as the activity between the maker and what is made is a 'making' (*poiêsis*), so a 'having', which is between one who has and the thing had, has its being in the activity of both. But after stating that 'having' is between the garment that is had and the one who has it, Aristotle says that there is not also a having of the having of the garment as there is a having of it. He adds, '[it is impossible to have] this having'

[1022b8], because there is no having of a having of this sort nor of one so described, nor is it possible to have *this*[450] having again as one has a garment; for if there were another having of this sort, in the way in which there was a having of a garment, the process would go on *ad infinitum*. (For according to another meaning of *hexis*, there *is* the having of a *hexis*, in the sense that [one possesses] virtue and scientific knowledge and art.) But the words, 'if it were possible to have the having of what is had' [1022b9], point out that if there were 418,1 again to be a having in addition to the having, already mentioned, of what is had, there could, as a result, be yet another having of that having; for if there were [a having] of the first having, there would also be one of the second and third, and the having [of a having] would continue *ad infinitum*.[451] For 'having' itself is predicated of something else, and is [the possessing] of the thing had, not of having [it].

Aristotle lists as another meaning of *hexis* [2] the one that has reference to dispositions, for disposition too is a state,[452] in the sense that we speak of a healthy or a sickly state. Therefore, the healthy or sickly disposition and state are referred to the one who possesses them, whereas the dispositions and states concerned with virtues and vices are referred to others as well;[453] for justice is a state through which the one disposed[454] is well disposed both towards himself and towards another. All the arts would be called '*hexeis*' in this sense, and even their base counterfeits,[455] and the definition of this kind of *hexis* would be 'a permanent quality in virtue of which particular activities are performed either well or badly'. Aristotle says that there *is* a having of *hexeis* of this sort. – He also calls a state [3] the part of this kind of disposition, if, for instance, a person is in a healthy state of body, or, on the contrary, in a diseased state, for even the parts that are so disposed are said to have states; and some of the natural virtues[456] [are states] both in themselves and in respect to their parts, and part of an art is in itself a state.

[CHAPTER 21]

Aristotle says that 'affection' (*pathos*) means [1] a quality in virtue of which bodies are altered; these are what he called, in the *Categories*, 'passive qualities and affections'.[457] And alteration would also occur in virtue of heaviness and lightness (which he again calls qualities)[458] at the moment when the bodies, although retaining their own form,[459] experience increase or decrease[460] in virtue of one of these; for if [they are] not [altered] in this way, the changes in virtue of these attributes become generations and perishings.

He also calls an 'affection' [2] the movements and alterations that have already taken place in respect to the affections mentioned above,

for affections in the first sense were those in virtue of which alteration was possible, whereas the affections in respect to these [are the actual alterations], such as being made white or black or becoming cold or hot. And the affection called such in this way is a kind of transient movement either in the body or in the soul.

[3] He says that among affections of the latter type, injurious alterations especially are called *pathê*,[461] whether in respect to the soul or the body, and most of all those that bring pain in addition to injury, for instance the constricting distress that is morbid or the painful alterations that miss the mark.[462]

[4] Again, misfortunes on a large scale are called *pathê*, in the sense that when an affection is overwhelming it is a painful evil; thus one who has been deprived of his children or fatherland is said to be 'afflicted' (*en pathei*), or anyone who suffers some extraordinary grief.

[CHAPTER 22]

Aristotle says that 'privation' (*sterêsis*) too is expressed in various ways. For things are said to be deprived [1] 'if they do not have one of the attributes that might naturally be possessed', even though they themselves would not naturally possess it [1022b22-4].[463] In this sense a wall and plants are said to be deprived of sight. And a privation of this sort would be equivalent to a negation,[464] when, [that is], things are said to be deprived of attributes that would not naturally belong to them, although these attributes could in general 419,1 naturally belong to *something*. A thing is also said to be deprived [2] when it does not have some attribute that either it itself or its genus would naturally have, as a man would be said to be deprived of sight because he does not have [an attribute] that he himself would naturally have, whereas a mole[465] is said to be deprived of sight not because it itself would naturally have [this attribute], but because the genus to which it belongs ('four-footed land animal') would naturally have sight. So too young pups would be said to be deprived of sight, in the sense that it is natural for them to have it and they do not yet have it.[466]

In another sense, a thing is said to be deprived [3] if it does not have an attribute at a time when it would naturally have it, for a thing is not called 'blind' at every age, but [only if] it does not have [sight] when it ought naturally to have it. But if blindness is the privation of sight, a thing is deprived at the time when it is blind. Aristotle adds, '[A man is called blind if he does not have sight] *in that in which* and *in virtue of that* and *in relation to that* and *in the way in which* he would naturally have it' [1022b30]. 'In virtue of which' indicates that he does not have [sight] in that in which[467] he

would naturally have it, for 'in virtue of which' points to a part. For a man is deprived [of sight] if he does not have the part in virtue of which he would naturally [see], since it is not the man who does not see with his ears who is deprived of sight, but one who does not see with his eyes. [A man is blind] if he does not see 'in relation to that' which sight is naturally [capable] of seeing, for one who does not see sound is not a blind man. 'In the way in which' indicates that a blind man is deprived if he does not see in the way in which it is natural to see something, for no one will call a man 'blind' because he does not see things that are behind him or at a great distance from him. And 'in that in which' is added to indicate that through which, for one who does not see at night is not a blind man, but one who does not see in daylight.

He says that privation means [4] the taking away of anything by force, as a man is deprived of a cloak that someone violently rips away, or as a person is said to have been deprived of his property because the tyrant seized his possessions by force.

'And there are as many kinds of privation', Aristotle says, 'as there are negations expressed by the letter *alpha*'[468] [1022b32-3]. By 'negations expressed by the letter *alpha*' he means [terms] that deny [by indicating] the privation [of an attribute], for a negation in the precise sense is expressed by the word 'not'. He is saying, then, that there are as many privations as there are denials, i.e. negations, of certain attributes, for the negation expressed by the letter *alpha* indicates a privation; and he adds examples to show the difference [between privation and negation].[469] For a thing is called 'unequal' if it could naturally have equality and does not have it, so that[470] privation also signifies this fact; but a thing is *aoratos*[471] if it could naturally be seen but is unseen, and also if it is by nature totally incapable of being seen.[472] He makes this point by adding, to his previous statement about unequal,[473] the words, 'and because it has no colour at all' [1022b35], for a thing is called ['invisible'] if it is by its nature simply incapable of being seen and has no colour, as when we say that sound is invisible; so that there is privation in this sense too, that namely of the impossible. Again, a thing is called 'footless' either if it is by 420,1
nature completely incapable of having feet, as are reptiles, or if it has defective feet, so that the term 'privation' is also used in reference to what has some attribute in an imperfect way. A thing is described privatively by means of privative terms because it has only little of an attribute, for instance pitless fruit, for fruit having only a tiny pit has a defective one. In this sense too [animals] are called 'neckless', and therefore 'privation' is also used in reference to this [imperfection of an attribute].[474] Again, privative terms are used to describe what cannot undergo some action easily or in the right way, as the word *atmêtos*; for a thing is called '*atmêtos*' not only if it is uncut,[475] but

also if it is not cut easily nor in the right way, nor as the one cutting it intends.

Aristotle has explained the different privations expressed by privative terms. Some of these terms apply to things that ought to have a certain attribute but do not have it; others, to things that do not have an attribute because they are incapable of having it; others, to things that have an attribute only imperfectly or to a limited degree; others, to things incapable [of undergoing a certain action] either easily or in the right way. Now he adds another meaning of privation: a thing is deprived [5] if it lacks some attribute entirely, but not if it has the attribute in some respect but lacks it another; for a blind man is one who is deprived of sight[476] in both eyes, a deaf person one who is deaf in both ears, not only in one. For this reason, he says, those who do not possess some attribute completely are said not to have it, and those who do possess it in its entirety are said to have it, 'nor is everyone either just or unjust' [1023a6];[477] for the bad man seems like one totally deprived of virtue and the unjust man like one totally without justice, but the good man and the just man seem like those who are completely virtuous. Therefore, just as a person who has sight in one eye is intermediate between one who sees perfectly and one who is totally blind, so there would be those who are intermediate between the good and bad or the just and unjust man. These would be those who, although they do not yet lead a completely upright life nor possess [moral] habits of the more excellent kind, nevertheless give evidence of a healthy imagination and right opinions, and perform some actions in the way in which the good man would perform them, and are for the most part faithful to their principles (*proaireseis*) just as good men are.[478]

[CHAPTER 23]

Aristotle says that 'to have' or 'to hold' (*ekhein*)[479] is also expressed in various ways. [1] 'To treat a thing according to one's own nature or according to one's own impulse' [1023a9], as fever, for instance, treats according to its own nature those possessed by it, for it disposes them in such a way that they take on its own nature and become feverish. But tyrants deal according to their own impulse with the citizens and cities held by them, for they drive[480] their subjects in whatever direction their own desires impel them, and use them as they please. And we are said to 'have' a tunic in this way, because we use it in whatever way we wish.[481] 'To have' is also used as the term reciprocal to 'treating a thing according to one's own impulse', for a thing that is treated by someone in such a way that it obeys his impulse is said to 'have' him, as a city is said to have a tyrant when it is ruled by him.

(Aristotle himself does not add this meaning of 'to have', perhaps because it is clearly [implied] by the term whose reciprocal it is.)

[2] What is capable of receiving something is said to 'have' it at the time it [actually] receives it; thus the bronze has the form of the statue 421,1
(for, being capable of receiving it, it did in fact receive it), and the body [has] the disease, and in general, matter is said to have form.

[3] Things that contain [something] are also said to 'hold' what is contained, for what is contained is said to be held by that which contains it. Thus jars are said to hold the liquids in them, and place the things in a place, and the city its citizens, and the ship its passengers; and he says that the whole 'holds' its parts in this way because it contains them.

Things are also said 'to hold' [4] if they prevent a thing from doing something or from moving according to its own impulse or nature; thus pillars are said to hold the parts resting on top of them, since they hold these parts up and prevent them from tumbling down according to their own nature. So too the poets say that Atlas holds the heavens: 'But Atlas, under strong compulsion, holds up the wide heavens' [Hesiod *Theog.* 517], as if the [whole] heaven would, according to its own nature, collapse onto the earth if it were not held, i.e. held up, by him. And those natural philosophers who assert that because of its whirling motion the earth remains [in position] and does not collapse would also say that it is 'held', in this sense, by the vortex.[482] It is in this meaning of *ekhein*, he says, that what keeps things together and prevents them from being scattered is said 'to hold', for a rope holds together a bundle of sticks, and glue the things glued. This was not the way in which the tyrant was said 'to have' his city, for the tyrant 'has' the city by treating it according to *his* own impulse, whereas the things [just mentioned] 'hold' what is held by them by preventing it from moving according to *its* own impulse, i.e. internal inclination (*rhopê*).[483]

The term, 'to be in' something will, he says, be used in ways similar to 'to have' or 'to hold', for corresponding to the meaning of what has or holds there will be something that is had or held in it, for what is treated according to the nature or impulse of another is said to be 'had' by the other, as a city by the tyrant,[484] so that what is had is 'in' the thing [that has it]. And what is in that capable of receiving it is had by the recipient and is in it; for [we can say] either that the form *is had* by the matter or that the matter *has* the form.[485] Things contained are also 'had' by what contains them (for [liquids] are held *in* a jar), and what is prevented from moving according to its own nature [is 'held'] by that which restrains it. So too, things that are held together by something are 'held' by it, and are *in* that which holds them.[486]

[CHAPTER 24]

'From something' (*ek tinos*) means [1] as from matter, and from matter understood in two ways. For a thing comes either from the proximate matter, which Aristotle calls 'the last species', or from the primary matter, which he calls the 'first genus' [1023a26-8]. For the primary matter would be in some way a genus of the things under it, for the proximate matter of a statue is the bronze, but its ultimate matter is water, if water were the matter both of bronze and of all things that can be melted. Or 'the primary matter' could be an even more remote [matter], which would be in turn a genus both of the matter of water and of that of bronze.[487]

[2] In another way, a thing is said to be 'from something' [as] from that which initiates movement; for a fight is said [to come about] 'from' insults[488] because it was that *from which* the fight began, and *from that point* [the man] began to fight. We might ask whether this sense of 'from something' applies to every instance of the productive cause, or only to cases such as that in which insults are the cause of a fight; for it does not seem that a statue can be said to be 'from' the sculptor [in this way]. But in fact, the same explanation is valid in cases of this latter kind as well, for the statue is from the one from whom it has the beginning of its existence, so that it is 'from something' as from its productive cause.

[3] Aristotle says that in another way a thing is said to be 'from something' as a part from the compound, since the compound [is made up of][489] both form and matter and is a kind of whole;[490] for the hand is from the composite, for it is from the body because it is a part of the body. He says that in this sense the verse is said to be from the *Iliad*, for the *Iliad* is a compound [made up] of its verses, each of which is from the *Iliad* as a part from the whole, for the *Iliad* too is a kind of whole. But since he has said, '[as] the parts are from the whole', he gives an example of what he means. In a similar way,[491] he says, the stones are said to be from the house, for the house too is a kind of whole and complete and is a composite [made up of] form and matter. To show that things of the latter type, [such as a house], are also wholes and complete, and not only those that are natural continua, he adds the following: 'for the shape is an end, and what has its end is complete' [1023a34]. What he means is this: that which has its end is complete, but the shape is an end, so that what has a shape is complete, and whole as well. But what is [made up of] matter and form is a thing of this sort; therefore, it is whole and complete. And a house also has a shape, so that it too is something whole and complete.[492] And stones would be from the house in the way that [a part] is from something as from a whole.

[4] There is, Aristotle says, another sense of 'from something'

[namely] as the form is from the part. (He is referring to the whole and complete *eidos*.)[493] But by 'form' he means the essence, not form [as it refers to] the whole and the composite, for he said above that *that* form is said to be 'from the matter'. For the definition that manifests the form of man[494] is said to be 'from biped', because [the differentia] 'biped' is a constituent of man[495] as a part. Again, the syllable is 'from the letter', for the syllable is from its letters, and the definition of syllable includes the combination of its letters.[496] Now this meaning of 'from something' would be the opposite of the one immediately preceding, for then the *part* was said to be from something, [namely] the whole, as stones [are] from the house, whereas now the *whole* [is said to be] from the part. But, he says, the form is not said to be from the part in the same way as the whole is from the matter. He says this to show that this sense of 'from something' differs from the first way in which a thing was said to be from something, [i.e] as from matter, for the words 'this case is different' stand for 'there is a difference between this case and that of the statue's coming from the bronze'. For the statue is from perceptible matter and a perceptible part, for every combined, i.e. composite, substance is from perceptible matter and a perceptible part. But both the form and the syllable *are* from a matter appropriate (*oikeia*) to them (for the matter of each of them is their own (*oikeia*) parts);[497] this however is not a case [of being] from perceptible matter, for neither [the differentia] 423,1
biped nor the letters are perceptible.[498] What he means is that the form, i.e. the essence, is not from its parts in the same way as the whole is from the matter appropriate to *it*, although both are 'from matter'; for the whole and the combined, i.e. composite, substance is from perceptible matter, whereas the form is not from perceptible matter but from 'the matter of the form', which is not perceptible. For the parts of the definition are not perceptible, nor, in general, are those of the form; for the matter of the form, i.e. the essence, is its parts, those that make its formula complete, and these parts themselves are included in the formula, just as the form itself is.

[5] Things are also said to be 'from something', Aristotle says, 'if one of these senses applies to a part [of the thing from which they come]' [1023b3], for instance to the part that is form or to the part that is matter; for 'the child is from its father and mother and plants from the earth' as 'from a part of those things'. For plants are from the earth as from matter (for they are nourished [by] the earth and grow out of it), but not in such a way that they are from all the earth, but as from a part of it.[499] A statue, however, is said to be from something as from its matter, the bronze, because *all* the bronze that is used as its matter is its substrate: for the bronze is said to be the matter of the statue not in the sense that [only] part of the bronze is its substrate, but because all *this* bronze that is used [to make it] is

its matter. Again, the child is from its mother and father, from the latter as its productive cause, from the former as its matter; for both the seed and [the organ] from which it issues are a part of the father,[500] and what receives the seed is a part of the mother, as well as the menses, which is matter for the offspring that is being generated.

[6] A thing is said to be 'from something' in another way in the sense that it comes into being after it *in time*; in this way night is from day because it is after day, and a storm from good weather because it is after the good weather. Of the things said to come from something in this way, some are said to be 'from each other' because they can change into each other, as in the cases just mentioned (for night changes into day and day into night, and good weather into a storm and the reverse, for changes are from contraries and these things are contraries); but others simply because they are successive in point of time, as when the voyage is said to be *from* the equinox because it took place *after* the equinox, for the equinox does not change into the voyage. So too, the festival of the Thargelia is said to come 'from' that of the Dionysia, and the Olympian games 'from' the Pythian.

[CHAPTER 25]

Aristotle says that 'part' (*meros*) means [1] that into which a quantity *qua* quantity might be divided were it to be divided; for whatever is taken away from a quantity *qua* quantity is called a 'part' of the thing from which it is taken, whether or not it measures that thing; two is in fact said to be a part of three. He adds, '*qua* quantity', for it is possible that a *quality* such as heat or whiteness or sweetness should be taken away from a quantity, but these are not parts of the quantity because, [if they are lost], nothing quantified is taken away from the quantity, for by their removal it does not become less in respect to its quantity.

424,1 He says that in another way, 'part' means [2] only those parts that would measure the whole if it were divided into them; for two is a part of four and six, and in general of [all] even numbers because it measures them. According to this meaning, three is not part of four nor four of six, although three and four *are* parts of four and six according to the first meaning [of part], just as two is part of three, but not according to this second definition.

[3] Again, Aristotle says, those things into which the species (*eidos*) is divided without quantity (that is, when it is not divided *as* a quantity) are also called 'parts'.[501] By 'species' he may mean[502] the essence, and by 'parts' the [parts] of the form and formula that are

included under the essence, those that shortly before [1023b2] he called 'the matter of the form'. For the division of the species according to its formula is without quantity, whereas its division into the individuals (*ta atoma*) of the species[503] is with quantity. [If the division is made] in this way, however, the species will not be part of the genus, but rather the genus will be part of the species,[504] for the genus too is part of the definition, as Aristotle will soon declare. Therefore, we must not take the term 'species' as if it were being used instead of 'genus', [505] nor [suppose] that in saying 'the parts into which the species might be divided without quantity' [1023b17], Aristotle would mean 'into which the *genus* might be divided'. But the words, 'without quantity', would signify that the species is being divided *as* a genus.[506] For 'animal' can be divided *as a quantity*, when it is divided into parts [such as] head, chest, and its other [bodily] parts, [but then] we would not be dividing it as a genus.[507] [But] 'animal' can also be divided, not as a body or quantity, but *as a genus*, and this division, made in virtue of the differentiae, divides it into its species. This is what Aristotle means when he says, 'the whole or the form or that which has the form' [1023b20],[508] for he wishes the division [of the species] as species to be made with reference to the form as well,[509] but a division of this kind is a division of genera as genera,[510] for it is not [a division] of them as wholes or as a plurality, but as genera. It is according to this meaning [of part] that he says that the species too are parts of the genera.

[4] Again, he says, that into which something is divided or from which it is composed is called its 'part'. [When he says] 'the whole or the form or that which has the form' [1023b20],[511] 'the whole' would signify a whole such as a body, which is divided into the parts that together make up the whole body. 'Or the form' again indicates the division [of a thing] as form. For there are parts of the form *as* form, for instance as the powers of the soul, which is a form, are parts into which the soul is divided.[512] 'Or that which has the form' [indicates] what is a whole as a composite, and which, as a composite, again has as its parts both the underlying body, whose division Aristotle described first (for such was the body, [taken] as a whole),[513] and the form, the second thing he mentioned. And the example that he gives[514] is of this last thing, that which has the form and which is divided as a composite; for the bronze cube, when being divided into bronze and an angle, was being divided into matter and form, since 'angle' indicates the form. [5] 'Again', he says, 'the [elements] in the formula that manifests each thing are also parts of the whole' [1023b22-4]. He means that the parts of the formula that manifests
the essence of each thing are parts of the thing; for the parts of the 425,1
definition would be parts, but parts beyond those of the form,[515] because the definition of the composite is indeed formulated in

reference to the form, but it signifies in addition the matter as well – a fact that is immediately evident from the genus.[516] It is in this sense that he says that the genus is part of the species, since it is part of its definition.

[CHAPTER 26]

Aristotle also presents the meanings of 'a whole' (*to holon*). For he says that a whole means [1] that from which no part is missing of those [parts] from which the whole is said to be naturally constituted; for things that lack none of the parts of which they are naturally constituted are whole in the primary sense. But he lists [2] another meaning of 'whole' that includes universals as well; moreover, it encompasses even artefacts, not only things naturally constituted, for the words, 'that which contains' certain things 'in such a way that they are one thing' [1023b27-8] clearly [refer to] the things contained. He says there are two ways in which the things contained are one: either [i] in the sense that each of them is one thing, or [ii] in the sense that all of them are one.[517] And first he explains [i] how it is possible for each of the things contained by [the whole] to be one and the same thing. For what is said universally[518] indicates something [that is said] of every instance, for what is said of every instance is thought to be a kind of whole; but this, he says, [i.e] what is a whole in this way and universal, is both a universal and a whole in the sense that it contains many things in itself by being predicated univocally (*sunônumôs*) of each of them, and by their all being one in respect to what is predicated of them, and by each of them being just what the predicate is because all of them admit, in the same way, of the formula of the common thing that contains them.[519] For the words, 'by their all being, each of them, one thing', indicates that they have their unity not in virtue of continuity, but because each of them admits of the same formula, for horse and man and dog and ox are all one because each of them is animal. Therefore, 'animal' is a whole in this way: because it is capable of containing things that, although they are divided and separate from one another, are one in this respect. This, then, is the meaning of 'a whole' in the sense that it contains certain things; but, he says, something is also one [ii] in the sense that it is *from* the things contained by it, so that it is continuous, i.e. one thing numerically,[520] for what is one thing and continuous and [made up] of parts and limited is a whole not because its parts admit of the formula of the whole, but because of its continuity. He shows what the continuous in the primary sense is by the words, 'especially [if its parts exist in it] potentially', for those things are continuous in the primary sense in which the parts exist potentially. But then[521] [a

thing is a whole] even if its parts are in it actually, but in such a way that it becomes one thing as a result of their being combined in a certain way through the form, as in the case of things produced through the arts; in this way a house or a boat is one thing.[522] But, he says, among things that possess unity in this way, [that is] through continuity and because[523] their parts are in them potentially, those that are naturally constituted are more properly wholes than those that are such through art, for a man is more properly a whole than a statue. For just as a thing that is naturally one is more properly called 'one' than a thing that is artificially one (Aristotle said this when he distinguished the [meanings of] 'one' [1015b36ff.], and he reminds us of that passage), so it is with 'whole'. And he gives the reason for this: because wholeness is unity, so that as a thing is one, so it is also whole. 426,1

[3] He adds another meaning of 'whole'. For among quantities and things that have a beginning and a middle and an end (this would indicate something that is limited), there are some for which no difference results from a change in the position of their parts; he says that a thing of this sort is called 'all' (*pan*). Such are things with similar parts and those that are formless, lacking any figure or boundary of their own, for instance water or air. But if they are things a change in the position of whose parts produces a difference, the term 'whole' is applied to them when the parts have the proper arrangement (*taxis*), one obviously in virtue of which the thing [composed] from them is said be this particular thing. Such are things with dissimilar parts, [for instance] a face or a hand or the body of each animal, for in these cases the position of the parts produces a difference in the subjects. A house or a boat is this kind of thing. He says that both 'all' and 'whole' are predicated of those things that, although their parts are similar, also acquire some shape or figure: [they are called] 'all' because of their substrate, 'whole' because of the shape that happens to remain in the exchange of parts.[524] This is the case with a statue that has been formed out of a single [kind of] matter, or wax, or a tunic (for it too has a shape of sorts), for each of these is an 'all' and a 'whole'. But he says that 'all' and 'whole' cannot both be predicated in reference to liquids and [other] things that have no shape whatever, but only 'all';[525] nor is number a thing of which both 'all' and 'whole' [can] be predicated, unless one were to apply the term 'whole' to it in a transferred sense. But he also says that the term 'all' in the plural (*to panta*) is applied to those things of which the term 'all' in the singular (*to pan*)[526] is predicated as of one thing. For when the things of which all in the singular [consists] are taken as separate, the term 'all' in the plural is applied to them: 'all the number',[527] when the aggregate of units is taken as one, 'all the units' when the units from which all the number was [constituted] are again taken as separate, but in such a way that they make up all the

number; so that the term 'all' in the plural is predicated of the parts as separate, but the term 'all' in the singular of the parts as united. So too, [we say] 'all men', or, in the sense that [they are] under one thing, 'all man'.[528]

[CHAPTER 27]

Aristotle says that not every quantity is called 'mutilated' (*kolobos*), for although mutilation is in [the category of] quantity, not every quantity admits of this predication nor of the affection that the word signifies; but if a thing is to be called 'mutilated' it must be [1] a whole in addition to being divisible.[529] The word 'whole' might indicate the thing's continuity, but it could also indicate that it must have parts that are dissimilar, for shortly before he stated this about a whole, saying that in this respect too 'whole' differs from 'all'. Again, he says that in addition to being divisible and a whole, [what is mutilated] must also [2] have position, that is, it must be among the quantities that have position. But he says that the number two is not mutilated if one of its [units] is subtracted, showing us that a thing is not called 'mutilated' even if half of it is taken away,[530] for the part [lost through] mutilation is never equal to what is left of the thing [after it has been mutilated]. Moreover, he is pointing out that in the case of number, not only is this number, half of which has been subtracted, not mutilated, but that a number is not mutilated even if some other part were to be subtracted, as he states next; for he says, 'nor in general' is 'any number' mutilated [1024a14], because a thing that is mutilated must retain the same substance and the same form. But the term 'mutilated' is not applied to things that take on some other form after a part has been removed, and this is what happens in the case of numbers.[531]

Aristotle adds that the term 'mutilated' is not applied even to all things with dissimilar parts, as he implied above that they *must* be things with dissimilar parts by calling them 'wholes'.[532] The term 'mutilated', then, is not applied to all things with dissimilar parts, but [only] to those [3] that have position, as we have already stated.[533] For it is possible that the parts of the number, when it is divided, should be dissimilar – for example, [those of] the number five, for two and three, the parts of five, are even and odd respectively; but a number is not for this reason thereupon called 'mutilated'. For the parts of a thing that is going to be mutilated must be so related that their position (that of the parts) produces a difference in the form, but this does not occur in the case of a number, because its parts simply do not have position at all, as we have been told in the *Categories* [4b26ff.]. For the reason that things with similar parts are not

mutilated is that a change in the position of their parts does not produce a difference.

Again, he says, things that are going to be mutilated by the removal of a part must be [4] continuous. For the musical scale (*harmonia*) is composed of dissimilar parts (that is, of a middle string and a string next to the lowest and one next to the highest and the highest), but each of these has position, i.e. its proper place (*taxis*), for the musical scale [consists] in the way in which the strings are positioned in relation to one another, and if their positions are changed the scale changes. Yet the scale is not called 'mutilated' because it is not continuous nor whole but [is composed] out of discontinuous and discrete parts; and number too is a thing of this sort.

Having shown, by the distinctions he has made, that mutilation [occurs] in quantities that are said to be wholes, Aristotle goes on to show [5] what kind of removal, and the removal of what part and in what things, mutilates the whole; for he says that not even in the case of continuous wholes does the removal of [any and] every part result in the mutilation of what is left. For if the principal parts of the form and substance[534] of a continuous whole were removed, what is left [of the whole] would not be mutilated (for an animal whose head has been removed is not called 'mutilated', since a thing of this sort is no longer even an animal); nor would something be immediately mutilated if just any of its parts were removed, or if its continuity were broken at any point whatever: a cup at least is not called 'mutilated' if a hole has been drilled in it, but only when its handle or some other projecting part has been broken off. Similarly, if you take away the flesh or cut out the spleen of a man or any other animal, the man is not mutilated, but he *is* mutilated when you cut off his nose or ear or finger. And Aristotle says that people are mutilated by the removal of those extremities that, once they have been completely removed, can no longer come to life or grow; it is for this reason, he says, that bald men are not called 'mutilated', because the hair, if it is taken away from the whole, is naturally capable of being regenerated and of growing again.[535] And the words, 'but [an extremity] that is not regenerated once it has been wholly removed' [1024a27], are equivalent to, 'but what has been totally removed is not regenerated'; for hair, although it is not regenerated in the case of the bald man, is nevertheless at least naturally capable of growing again if it is removed. Or else he adds the word 'wholly' because, if [only] a portion has been excised from some extremity, for instance a small bit of flesh, it is possible that this flesh[536] could grow again. Therefore, hair can be regenerated when it has been taken away, if not in all cases at least in some, or even in all cases in which it has been removed;[537] but if an ear or nose has been removed, in no case is it ever regener-

ated. – It should be pointed out that Aristotle has not distinguished the various meanings of 'mutilated', but has provided information and instruction.

[CHAPTER 28]

Aristotle says that *genos*[538] too is expressed in various ways. For there is said to be a *genos* [1] in the case of things that, being of the same kind, have a continuous generation (*genesis*), for it is in this sense that we say, 'as long as there is the race of men', meaning, 'as long as the race of men is continuous and endures'. He adds the words, 'of things that have the same form' [1024a29] because we do not speak of 'a race of men' if it is horses [that are generated], but if there are always men being generated in succession from men.

And [2] that *man* is called a kind of *genos* from whom certain people are [descended], the one who first brought them into existence and was their founder. Thus the race of the Hellenes gets its name from Hellen because he originally established their race and was the cause of their existence; so too the Ionians are those [descended] from Ion, and the Heraclids those who have Heracles as the progenitor of their race and its leader, and the Pelopids too get their name in this way. He says that the race of some people takes its name from the female, as those said to be [descended] from Pyrrha because, according to the myth, she began their race by giving birth to [Hellen and Amphictyon]. But races are more often named after the one who did the begetting, because he provides the form, but the mother the matter, and each thing has its being especially in virtue of its form. He does not mention races named after places, as a person is called an Asian or Egyptian 'by race', for those who are so designated do not of course derive their name from the one who brought [their race] into existence.

Next Aristotle sets forth [3] two explanations of the same meaning [of *genos*], for he gives two explanations of 'genus', which is predicated[539] of several specifically different things. [i] According to the first explanation, 'genus' is said to be the subject of the differentiae;[540] for he says that it is the plane figure – for the word 'figure' must be added to 'plane'[541] – for 'plane figure' is the genus of each of the plane figures. For he takes the whole term, 'plane figure', [as] the genus of triangle and square and all the plane figures, just as 'solid' [is the genus] of the solid figures. 'For each of the figures is, in the one case, a plane of such and such a kind', e.g. a square, 'and, in the other case,
429,1 a solid of such and such a kind' [1024b2-3]; for a sphere is a solid figure of a definite kind, as are a cube and a pyramid. After saying this, he adds, 'this is what underlies the differentiae', because the genus is

converted into species by its differentiae, and this is the way in which it underlies them. And since he has said that 'genus' in this sense is what underlies the differentiae, he will say, later [in this chapter], that it is matter inasmuch as it underlies the differentiae. (He also calls the genus 'matter' in Book 7 of this treatise.) As a second explanation of *genos* in the sense of 'genus', Aristotle defines it [ii] as the first constituent of each thing in the definitory formula that signifies its essence, that which is predicated essentially of the subject. For this is what the words, 'what is said essentially' [1024b5], indicate; for genus in this sense signifies that which is predicated essentially of several things differing specifically, for the differentiae of the first [constituent] given in the definition are said to be the qualities in virtue of which things in whose definition there is the same genus differ from one another. In the first case, then, he explained genus from the perspective of the underlying subject that is converted into species by the differentiae, whereas here he explains it from the perspective of the first [constituent] that is included in the definition and that is predicated essentially [of the subject]; although the explanations differ, they explain the same thing. (He calls the differentiae 'qualities' because shortly before, in distinguishing [the meanings of] quality, he gave first place to the differentiae [1020a33].)

After saying that these are the meanings of *genos*, Aristotle summarizes them, thereby showing that the last two that were given are different explanations of the same meaning. Some things are called *genos* by reference to the successive generation of the same species, as the 'race' of men or horses; others by reference to the thing that initiates movement and that is a cause of things of the same kind that come after it, as [someone] is called 'begetter' of the Heraclids or the Hellenes or the Ionians. 'Things of the same kind' is not a meaningless addition, for we do not speak of 'the descendents' of any progenitor whatever, but [only] if he is of the same kind as they, for when a *man* is the one who began a race, the race is after and from him.[542] But when he says that '[*genos* is used] in the sense of matter' [1024b8], he means that *genos* as matter is the common [constituent] predicated of several things differing specifically. And he makes clear the aspect in which this *genos*, [the genus], is matter by saying, 'for that to which the differentia or quality belongs is the underlying subject, which we call "matter" ' [1024b9-10]. For because the differentiae belong to [the genus] as to a substrate,[543] and because the genus is converted into species by the differentiae, as matter too [is determined] by the form,[544] the genus would be matter. For because the differentiae, for their part, are qualities, but the genus underlies them (for that to which the differentia belongs underlies the differentia just as that to which a quality belongs underlies the quality)[545]

– since, [I say],[546] the substrate of qualities is called 'matter', the genus too is matter of the qualities that are differentiae.

After his discussion of genera, Aristotle goes on to state what things are 'other in genera'. He says, then, [1] that things 'whose first
430,1 substrate is different' are other in kind.[547] By 'the first substrate' he means the matter; for if things do not have the same matter, or if the matter of one of them is not resolved into that of the other, nor the matter of both of them into the same kind of matter, they are other in genus. By 'matter' he probably means the matter that is actually underlying,[548] which he calls 'first', meaning by this the proximate matter as distinct from the matter that is *last* by resolution, which is 'first matter' in the proper sense. Bronze, for instance, is the substrate of the statue, but water of a cup made of ice, but the matter of the statue is resolved into that of the ice, on the supposition that bronze can be melted and that all things that can be melted are from water.[549] Consequently, things that correspond to this meaning [of different] are *not* 'other in genus'. Again, if gold were the substrate of one thing and silver of another, these are again different [kinds of] matter, nor is one of them resolved into the other; but because both of them are resolved into one and the same matter (that is, into water), the things mentioned are *not* 'other in genus'. It is therefore things whose substrates allow nothing of this kind that are called 'other in genus', as stone and bronze, for their substrates are, respectively, earth and water, which are not resolved either into each other or into some other perceptible substrate that is the same [for both]. Since he has mentioned the substrates that allow nothing of this kind, Aristotle adds what things are of this sort: for he says that it is in this way that form and matter are other in genus [1024b12]; by 'matter' he means body.[550] Therefore, since the substrates of body and of form are not said to be resolved either into each other or into a common substrate, he says that form and matter are 'other in genus'. (He might mean that the parts of the definitory formula underlie the form as its matter, for he has just said this.)[551] Since, therefore, the substrates of body and form are not the same, nor is one of them resolved into the other, nor [both of them] into the same substrate, body and form would be other in genus according to this meaning.[552] Again, form and matter will be other in the following way: because one of them is not resolved into the other, since neither are they themselves *in* one another,[553] nor is there something else that underlies them. For neither is there one thing that underlies both of them, nor is the substrate of one of them resolved into that of the other, because they do not in fact have any substrate; for form is not from a substrate or matter, nor is there any other matter that in its turn serves as substrate for matter in the primary sense of that term.[554]

He says that things are 'other in genus' [2] whose first categories

and first genera are different; for one of the first genera signifies what a thing is, namely that it is substance, another what kind of thing it is, another its quantity, and the rest of them signify one of the other things enumerated in the *Categories*. And he adds the cause of their otherness: for because they are not resolved into each other nor into some one thing,[555] these things are other in genus. Animal and bird will not be different genera in this way, nor do form and matter seem still to be other in genus according to this meaning, for both of them are under 'substance'.[556]

[CHAPTER 29]

Aristotle also distinguishes [the kinds of] 'falsity' (*to pseudos*), for he says that there is falsity [1] in things, and [2] in statements (*logoi*).[557] (He puts the phrase, 'in another way', before the words, 'in things' 431,1 [1024b17], perhaps because it is unusual to speak of falsity in reference to things (for falsity seems to be in what is said and thought);[558] or else he says 'in another way' instead of 'in one way'.) He distinguishes, then, two ways in which there is falsity in things: [i] because in general a thing does not exist, and [ii] because of the false appearance that results from it.[559] For [i] the falsity of non-existence is not in things[560] in the same way as in the statement about the thing.[561] For the false statement about a thing, the one that says 'it is', and the true statement about this same thing, the one that says 'it is not', derive their truth and falsity from the way in which they combine the thing; hence there is both a true and a false statement about things that exist and likewise about things that do not exist. But falsity in respect to things is not the kind that is in the combination of certain things, but there is falsity in things because[562] a thing *is not*, [that is], does not exist, just as there would in turn be truth in things because they *exist* and *are*, and this case is not the same as that of *saying* that they exist. Consequently, there can be both truth and falsity in a statement about the same thing, but it is impossible for there to be falsity in the thing so long as it truly *is*.[563] It would, however, be possible to say that both falsities are in the statement, i.e. the proposition, but that one of them is from the *thing in* the statement, the other from the *statement* itself. For the statement saying that what does not exist does exist has its falsity from the thing that does not exist,[564] whereas the statement saying that what [in fact] belongs to one thing belongs to another has this falsity from the statement; for the latter falsity is the transferring of the attribute of one thing to another thing. By adding the words, 'because it is not combined or cannot be combined' [1024b18-19], Aristotle shows that he thinks even falsity as a thing is in what is said. But he has [already]

showed that the *thing* has falsity,[565] for if there are things about which one cannot make a true assertion when he combines them and 432,1 says that they *are*, this falsity is on the side of the thing;[566] but the falsity in the statement about things is, just for that reason, [present] in their composition.[567] For the words, 'because it is not combined or cannot be combined', signify a thing that does not exist or even one that cannot exist. For by 'composition' he means the identity of things and their conjunction; for the 'existence' of this sort of thing is its 'composition'.[568] Therefore, the diagonal neither is, nor can it ever become, commensurable with the side; but [to say] that you were sitting when you were standing was false at that time because you were not actually sitting, not however because it was impossible for you to be sitting. And among things (*en tois pragmasin*) there are false things, either those that are completely non-existent and incapable [of existing] and forever false, or those that do not now exist; for these latter are false now, at the time when they do not exist.[569]

[ii] But it is in another way that things of the following type are false: those that, although they are beings, are nevertheless the source of a false appearance because they appear either not to be the *kind* of thing that they are, or to be things that *are not*.[570] These things are false in a way different from the one just described, for things whose appearance is false are not false [in the same way] as were the things discussed above. For these things are in fact *something*, not however the kind of thing that they appear to be. Such are the things in pictures and sketches, which are something, but not what they appear to be; for they appear to be animals although they are not animals, nor any of the other things that the painting might portray. Similarly, the images (*phantasmata*) in dreams are also something (for certain movements take place in those who see the dream-images), but these images are not the kind of thing that they appear to be. For something appears to be walking or conversing, but this is not the case. The images that appear in mirrors are things of this sort and are also false in this way, for they too are something, but not what they appear to be. Aristotle says that this sort of falsity is also 'in things' because their nature itself is false,[571] and the deception that we thus experience is in *them*, not in the way in which they are combined in the statement about them.[572] Things (*ta pragmata*), then, are false in this way, he says, either because they themselves do not exist, or because the appearance resulting from them is of 433,1 something as non-existent; for an appearance of the kind that comes from them is not of something that exists. For the walking about that the dream-image (*phantasma*) appears to do, or its conversing or in general its performing any action, is not real (*on*), but images of this sort are at least things (*onta*),[573] on the supposition that there are certain movements resulting from the actual perception of objects,

and that perceptible objects leave behind residual traces (*enkataleimmata*) in the sense organs.[574] (But Aristotle attributed even falsity in the appearance to *things*.)[575] – In the statement, '[there are things that are beings, but that by their nature appear] either not to be the kind of thing that they are, or to be things that are not' [1024b21-3], the words 'the kind of thing they are not'[576] would refer to [things in] the sketch, and the words, 'or things that are not' to the dream-images.

But [2] a false *statement* is a statement of things that are not, but a statement is not false simply [because] it is about things that are not, but inasmuch as it is a *false* statement about things that are not;[577] for a statement is false if it says that things are in a way in which they are not. But there *is* a true statement even about things that are not, namely the one that says they are not; but the false statement is the one that speaks of things that are not as beings or of beings as things that are not. How then is a statement false if it speaks of things that are not? Why, by the fact that it says the things to which it refers *are* in a way in which they are not. – It is also possible to read *ê* without the aspirate,[578] so that the meaning is: a false statement is a statement of things that are not – *either* one that asserts that things that are not do exist (to say, e.g., that the horse-centaur exists), *or* one that is false in general. But even any statement that makes assertions about things that *are* can be false, if [for instance] one were to say that the circle is a plane figure enclosed by three straight lines. And [thus] the inference resulting from this reading would be: not only is a statement false if it asserts that things that are not do exist, but any statement is also false when it is made about some other thing and not about that of which it is true. But if we read '*qua* false', retaining the aspirate, the meaning would be: a false statement is a statement of things that are not; for '*qua* false' signifies, 'inasmuch as a statement is false, it is of things that are not'. For the inference [that Aristotle draws] makes this point clear: 'hence every statement is false if it is of something other than that of which it is true' [1024b27-8];[579] for if every statement is false if it is of something other than that of which it is true, but a statement is true of that to which it applies, it would be false [if said] of that to which it does not apply and of what is non-existent in this way. For the statement that is true of the circle is a false statement of the triangle because it is of something non-existent.[580] For even if the statement just given is [the statement] of *something*, nevertheless, inasmuch as it is false, it is of what does not exist; for the only statement that describes [triangle] is the one that says, 'a triangle is a figure enclosed by three straight lines'.[581]

Aristotle says that in one sense there is but a single statement of each thing (for there is [only] one statement that manifests the

substance of each thing), but that in another sense there are many statements of the same thing. For since the thing itself and the thing itself with an attribute seem in a way to be the same thing, as Callias and musical Callias (for these are one thing in respect to the subject), there would be one statement of Callias simply as Callias, another of Callias as musical, another of Callias as pale, and Callias will have a different statement for each accident that is combined with him, so that in this way there are several statements about the same thing if any statement about it is true.[582] (But we must not understand the term *logos* [here] as the definition, in the strict sense, that applies to Callias and Socrates and to [all] individuals.)[583] In the way just explained, then, there are several statements of the same thing. 'But the false statement is of nothing in the absolute sense' [1024b31-2]. By 'in the absolute sense' (*haplôs*) he means 'in the strict sense' (*kuriôs*), for in the strict sense the statement of each thing is the one that is true, for this statement is also proper [to the thing]; but the false statement, inasmuch as it is false, becomes a statement by the addition of that of which it is false. For a false statement about a horse is the one that says it is 'rational mortal animal', because it is not of this thing that the statement is true, for it is true of a man; but 'rational mortal animal' is, in the absolute sense, not the statement of horse.[584] And similarly a statement will not be, in the absolute sense, that of any of the things of which it might [be predicated] falsely, for the false statement is, in the absolute and strict sense, [a statement] of nothing.

Aristotle has said that a false statement is [a statement] of what does not exist, and that in the absolute sense the false statement is not the statement of that thing of which it is false but is such with an addition, but that even the false statement is about something, for it is in fact [the statement] of another thing, but is applied to something other than that of which it is [the statement]. Having said this, he criticises Antisthenes, who naively asserted that a statement [could] not be made about anything other than that to which it properly
435,1 belongs.[585] He was misled by the fact that a false statement is, in the absolute sense, a statement of nothing at all; for, even though the false statement is not [a statement] in the absolute and precise sense, [it does not follow] that just for this reason it does not even exist. Antisthenes, however, thought that each of the things that exist is described only by its own proper statement, and that there is one statement for each thing, namely the one proper to it; but that a statement signifying something [else], one that is not a statement of the thing about which it is said to be, is obviously alien to that thing. From this premise he would even attempt to conclude that *contradiction* is impossible. For, [he argued], those who contradict one another ought certainly to be making different statements, but different

statements cannot be made about the same thing because there is [only] one statement for each thing, that proper to it, for there is one statement for one thing, and a person who talks about that thing ought to make only [this one statement], so that, if [two people] are talking about the same thing, they would be making the same statements to each other (for there is one statement about one thing), and if they are making the same statements they would not be contradicting each other. But if, on the other hand, they are making different statements, they would no longer be talking about the same thing, because there is [only] one statement about the same thing, and those who are contradicting each other ought to be talking about the same thing. And thus he concluded that there could be no contradiction, and almost that there could be no falsity, because it is impossible to make any statement about a thing other than the one that is peculiar and proper to it.[586]

Aristotle shows that this argument (*logos*) is naive from the fact that [it is possible] to describe each thing not only by the statement proper to it but also by that of another thing. This might of course be done falsely and hastily and repetitiously[587] and carelessly, as when a person uses the statement of circle in reference to triangle, or that of horse in reference to man. For the statement that says, 'a horse is a two-footed land animal', although it *is* a statement, is not true of anything; for it does not apply to man, since it does not even have 'man' as its subject, nor is it about horse, about which it is said; but if it is not true about this thing, it would obviously be false about horse.[588] However, he says, it is also possible, after a fashion, to make a true statement about a thing by using a statement alien to it, when we transfer a statement that is primarily and proximately proper to one thing to things that have their being [only] secondarily and from that [first] thing. For instance, in the case of number, two is the 436,1 number that is primarily double; the word 'double', at any rate, originated in dependence on two, and we also apply this term to each of the other double numbers, [saying] that this number is double that one because it is related to it as two is to one. Hence two is double in the primary sense, but the even numbers coming after it – four, eight, and the rest – are also called 'double' because we apply to them too the statement that primarily and properly belongs to two, and [in so doing] we speak the truth. But if it is possible to describe certain things by the statements belonging to other things, and this not only falsely but truly, there would not be one statement for each of the things that exist, nor would there be only one way of speaking about each of them; for Aristotle has already said [1024b29] that in one sense there is one statement of each thing, but that in another sense there are many. Falsity in thought (*dianoia*) might also be reduced to falsity in the statement, for thought too is a kind of statement.[589]

Having explained how things and statements are false, Aristotle introduces another meaning of 'false'. For [3] a *man* is said to be false in neither of the two senses of falsity already given, but inasmuch as he is adept at lying, and does so intentionally – not for any other reason, such as profit or reward, but simply because he takes pleasure in lying. (For a man who lies for profit is not false nor a lover of falsity, but a lover of gain or something of that sort.) Again, a man is also called false if he misleads others into being deceived, not by making them take pleasure in lying, but by convincing them to accept as true the things that he deceitfully alleges to be true. Those who mislead others into being deceived are called false in this way, much as things too are said to be false because they produce false appearances: yellow-coloured things, for instance, that give the appearance of being made of gold are called false, as are people who create the appearance of bodily vigour by puffing themselves up like [members of] the tribal choruses;[590] so too the things that Aristotle described as false because they appear to be something other than what they are, in the way in which paintings and dream-images were [false].

Having said that the false man is one who takes pleasure in lying, he remarks that the argument in Plato's *Hippias* is misleading and fallacious.[591] This argument purports to prove that the same man is both false and true because he is equally capable with respect to contraries; for it assumes that the false man is one capable of deceiving, and that such a man is one who has the best knowledge of the truth, i.e. the wise man (*ho phronimos*). It is not, however, this sort of man who is called false, but [rather] one who deliberately chooses to lie, a facile and unhesitating liar who takes pleasure in this kind [of activity]; [but] such a man, one who persuades others to be deceived and deliberately chooses to do this, is not the wise man, but a man who is simply corrupt. Moreover, he says, this [further] argument in the *Hippias* is also stated incorrectly, the one that asserts that a man who voluntarily performs bad actions is better than the man who does so unwillingly. The argument makes this assumption on the basis of a false induction: it says that just as a man who limps voluntarily is better and healthier than one who does so against his will (and this holds in other cases in which people feign something in this way), so the man who voluntarily performs bad actions is also better than the man who does so against his will. For [Plato] assumed that because one who limps voluntarily is [only] imitating a lame man, he is thus better than the one who limps against his will, for the latter is [really] lame whereas the former is not. Hence a lame man is being compared to a man who [only] appears to be lame, but of course, were [Plato] to assume that the man who acts voluntarily [chooses] to be really lame, this person would presumably be *worse* than the man who is lame against his will, just as

a man who is voluntarily of depraved character is worse than the one who is such unwillingly; for the profligate man (*ho akolastos*) is worse than the incontinent one (*ho akratês*).[592] Similarly, the man who lies voluntarily and takes pleasure in deception is worse than one who lies unwillingly.

[CHAPTER 30]

Aristotle also explains, with reference to accidents, what kind of attribute will be an accident.[593] For what does in fact belong to something, and can truly be *said* to belong to it, although not of necessity or for the most part, is called, and is, an accident. Thus it is an accident for a man to find a treasure when he is digging a hole in order to plant something, since it is not a necessary consequence that those digging holes should find treasures, nor does this usually happen, but only rarely did someone find a treasure while planting or digging. Hence the discovery of the treasure did not come about from the digging,[594] for neither was digging a necessary (*ex anankês*) cause of finding the treasure,[595] nor is it always the consequence that, when one digs, the discovery of treasure follows. Hence, although it is possible to find a treasure in this way, nevertheless it is only by chance (*apo tukhês*) and accidentally that digging is a *cause* that produces the discovery of the treasure. And [thus] things that happen by chance are accidents in this way. And the fact that the musician is pale is also by accident, for it is neither the necessary nor the usual consequence that one who is a musician should be pale.

Next Aristotle explains how we decide [that something is] an accident.[596] For there is an attribute, and there is also a subject to which the attribute belongs. Now certain attributes at least belong either to a particular place, e.g. in a part of their subject, or at a particular time (for there is no reason why some attributes should not belong to their subjects in such a way that they are present in [only] a part, or [only] at a certain time), and place and time [qualify] even some of the events that occur of necessity, for instance the rising and setting of the stars – place, obviously, because the stars rise in one part of the world and set in another, and [also] time, for their risings and settings do not always occur at the same times, but [at a different time] in each case.[597] [An accident], therefore, is whatever belongs indeed to a subject either in the unqualified sense or at a particular place or in respect to time, e.g. 'now' [or] 'here' (because it is in this part),[598] but [does not belong] because of some antecedent and definite cause.[599] For this last point is what is indicated by the words, 'not because this *was*, either now or here'.[600] Aristotle is pointing out that the causes of these [accidental attributes] do not

always exist, but [only] at a certain time, and that the attributes in a part [of the subject] are not accidents in the unqualified sense, but that they become accidents at the time when the definite cause because of which *they* exist does not [itself] exist.[601] For it was not by chance that the finger became swollen if there was a cause of its swelling,[602] nor does the heat of summer result from chance, for its cause is the ascent of the sun to its zenith. 'Therefore', he says, 'there is not a definite cause of an accident, but a chance one, and this is indefinite' [1025a24-5]. (The words, 'therefore there is not', could also be taken to mean, '[there is] *no* cause', for Aristotle has already stated that an accident does not have a cause by saying, 'but not because this *was*'.)[603] For in this way[604] it was an accident that a man arrived at Aegina, if he was not making the voyage with the intention of reaching Aegina. 'The accident indeed happened or exists' [1025a28], but it did not come about of itself nor of set purpose (*proêgoumenôs*),[605] but the result *happened* because something else occurred. For the man's decision to board ship was deliberate, [but] it turned out that he found himself in Aegina, although he did not sail with this intention; for the storm that prevented him from reaching the place that was the goal of his voyage was the cause of his arriving at Aegina. This result, therefore, did not come about of itself, nor was it this that the man was attempting to do, but it supervened on something else that occurred.[606] For it was the storm, not his setting out on the voyage, that was the cause of his failure to reach his objective, for he set sail with another end in view.

After this discussion of the accidental, Aristotle says that 'accident' also has another meaning. For any [attributes] that belong to a subject in virtue of the subject itself, but are not in its substance or definition, are also accidents,[607] [but] accidents that are the objects of demonstration.[608] Thus it is an attribute of triangle to have three angles equal to two right angles; for this is an attribute that belongs to it in virtue of itself, one however that is not included in the definitory formula that manifests the substance of triangle, at least if the formula of triangle is, 'a figure enclosed by three straight lines'. 'And it is possible', he says, for accidents of this kind 'to be eternal' [1025a33-4], whereas none of the attributes that are accidents in the first meaning of the term is eternal. Perhaps he says, 'it is possible', because this point is not his principal concern in the account he is now giving, although it does seem that accidents of this sort *are* in fact eternal. Or else [he means that] if it is possible for an entire species of living things not to be eternal, for instance that of the 439,1 cicadas, neither would the attributes that belong to them in virtue of themselves and are accidents of this kind be eternal.[609] But it is impossible that any of the accidents first mentioned should be eternal, for how could that which neither comes to be, nor is, either of

necessity or for the most part be eternal? – In some manuscripts this reading occurs: 'and these [accidents] are proper causes.' Read thus, the text would mean that accidents of this kind are useful for demonstrations, since we demonstrate by means of them. The remark that Aristotle then adds – 'this matter is discussed elsewhere' [1025a34-5] – would [thus] be a sequel to this reading, for he deals with *per se* attributes and causes in the *Posterior Analytics* [1.6-7]. For there he has explained what [attributes] are causes of demonstration: that, sc., it is not those that are accidents of any kind whatever, but those that belong in virtue of themselves [to the subjects] in which they are, and that are accidents in this way. Or perhaps the words, 'whatever attributes belong to each thing in virtue of themselves[610] and are not in its substance' are equivalent to, 'whatever attributes belong to each thing in virtue of some definite cause, not however in such a way that they are in its substance'.

Notes

1. The complete title is found only at the beginning of the commentary on Book 1. That Delta is here referred to as Book 4 is consistent with 22-5 below, where Alexander calls Beta and Gamma Books 2 and 3 respectively. Thus he apparently regards Alpha Elatton as part of Alpha Meizon, a position already evident in his Beta-commentary (237,10-13).

2. 344,3. This use of Aristotle's name is a rare instance; in the sequence of the commentary, 'Aristotle' is supplied in the translation where Alexander says only, '*he* says'. In quoting the text of *Metaphysics* on which he is commenting, Alexander uses present or past tense indiscriminately: 'he says' or 'he said'. For the sake of uniformity, all such instances are given in the present tense unless there is a clear reference to an earlier text.

After this Introduction, the commentary is presented in sections corresponding to the chapters into which the text of *Metaphysics* is now divided, although there are of course no chapters as such in Alexander's text. Important terms are given in their transliterated form at their first occurrence in the text, and thereafter only if the term can have other meanings than the one first assigned to it. The Greek-English Index provides a complete listing of the various meanings that terms such as *eidos* and *ousia* assume in different contexts.

3. 344,4. 'Things expressed in various ways' is the translation of Aristotle's *ta pollakhôs legomena* suggested by J. Owens (*The Doctrine of Being in the Aristotelian 'Metaphysics'*, 3rd. ed., Toronto 1978, 115). In choosing this expression to describe the subject-matter of Delta, Alexander makes an important point: Aristotle's primary concern is not with the *terms* 'cause', 'element', etc., but with the *things* designated by these common names (cf. 395,12 below). Thus we give the name 'cause' both to the sculptor and to the stone from which he makes a statue, but these things, sculptor and stone, are said to be a cause 'in various ways' because the definition that states their respective essences is different (*Cat.* 1a2; cf. *Top.* 106a9, *pollakhôs tôi eidei legetai*, 'are expressed in various ways with respect to their form'). The *pollakhôs legomena* might therefore seem to be identical with the equivocals (*homônuma*) defined in *Categories*, but this point requires clarification, see 345,8 below and n. 7.

4. 344,14-20. A paraphrase of *Metaph.* 4.2, 1004b17-26, where Aristotle distinguishes the dialectician and sophist from the philosopher, to whom they have a specious resemblance.

5. 344,24. See *Metaph.* 4.2, 1004a10-33 and 1005a12-17, where Aristotle mentions a number of topics to be investigated by the philosopher. Most of these are among the subjects actually treated in Delta; evidence, for Alexander, that Delta rightly follows Gamma in the order of the treatises. But the fact that, 'Many of the words discussed in Delta are not listed in Gamma as proper to "philosophy" ... has led Ross and others to conclude that Delta is out of place' (*Aristotle's Metaphysics*, translated with notes by Christopher Kirwan, Oxford 1971, reprinted 1984, 122).

6. 345,4. Commenting on the chapter on causes in Delta, which reproduces almost exactly a passage from the *Physics*, Asclepius says: 'They (presumably the editors of the *Metaphysics*) said that certain parts of Delta had been lost, and since they were unable to reproduce [the missing parts], they supplied them from Aristotle's own writings' (*in Metaph.* 5, 305,20).

7. 345,8-11. Alexander has in mind *Metaph.* 4.2, 1003a33: 'Being is expressed in various ways, not equivocally, but by reference to one thing and to some one nature.' Alexander's commentary on this text (241,3ff.) shows his understanding of the so-called 'equivocals by reference', the special case of 'things expressed in various ways' that are the subject-matter of Delta. Aristotle, he says, is establishing a class of things intermediate between the univocals and equivocals distinguished in the *Categories*. These intermediates have the same name as the thing from which they originate or to which they are referred (Alexander

regularly uses the expanded formula, *aph' henos kai pros hen*, *EN* 1.6, 1096b26), but they differ both from univocals, things belonging to the same genus, and from equivocals, things having nothing in common but their name. Thus Aristotle's 'one nature', to which alone the name belongs in strict propriety, 'can somehow be discerned in all the things' named after it because they are related to it in various ways. Alexander remarks that in other places Aristotle includes this nature under the more general class of equivocals, but that 'here, distinguishing more carefully, he says that it differs from the equivocals ..., for things of this sort', i.e. the primary and secondary analogates, 'do not share only the name, as do things called equivocal in the primary sense, those that are such by chance, but have also a reason for their being named in the same way as one another'. It is in light of this explanation that Alexander says that Delta does not consider equivocals; cf. 360,15.

8. 345,15-18. *suntaxis* might refer to the place of Delta within the structure of the *Metaphysics*, as does *taxis* at 344,20 above. But the context suggests that Alexander has in mind the internal arrangement of Delta itself. He recognizes that the things with which the book deals fall into certain groups (Owens, op. cit. 86) such as beginning-cause-element or one-being-substance, which might well be expanded to include related subjects.

9. 345,21ff. The meanings that Aristotle here assigns to *arkhê* are those that occur in ordinary language, in contrast to his earlier explanation (*Metaph.* 1.3), where *arkhê* has the technical sense of 'principle' and its divisions coincide with those of the four causes. In the present text, only the fourth meaning suggests that technical sense, although the hypotheses of demonstration (1013a16) are principles of cognition. *arkhê* in the non-technical sense is derived from the verb *arkhesthai* (middle), 'to begin', so that it can be translated as 'origin' (Kirwan and the Revised Oxford translation of Aristotle) or as 'beginning, starting-point'. The translation adopts these latter terms, varying them to suit the context.

10. 345,22. And therefore *arkhê* is not a univocal. The *arkhai* peculiar to the particular sciences are the subject-genus with which they deal and the axioms, hypotheses and definition pertinent to that genus (*An. Post.* 1.10).

11. 345,22-3. In fact Aristotle gives only six meanings. Alexander later suggests (346,11ff.) that one of these should be taken as two.

12. 345,36, *enuparkhontos*, lit. 'which is in the things coming to be', i.e. 'immanent' (Ross) or 'intrinsic' to it. Kirwan's 'constituent' well expresses the sense, and is adopted in the translation.

13. 346,6. In the type of production just described, certain starting-points are imposed on the agent because they are by nature 'the first part and the beginning of the thing' to be produced (1013a2). But in the previous type, the agent may choose the starting-point from which the effect will follow most easily, and this will vary from case to case; thus in teaching it will be determined by the nature of the subject-matter, the talent and disposition of the student, etc. This option, it would seem, applies only to the human agent, since nature always moves in the same way to produce its effects.

14. 346,18. 'Beginning', as *arkhê* has been translated in the previous cases, is not really appropriate to the present instance, where *arkhê* means 'authority, the power of command'. The dual sense is possible in Greek because *arkhê* is associated both with *arkhesthai* (middle), 'to begin', and with *arkhein* (active), 'to rule'. Alexander's *hoi arkhontes*, 'the rulers', expresses this active sense of *arkhê* better than Aristotle's *hai arkhai*, 'magistracies', to which he adds 'dynasties, kingships and tyrannies' (1013a12).

15. 346,22-4. Aristotle is led to mention the master-arts in this context because their very name, *archi*-tectonic, contains a reference to *arkhê* defined as 'authority'. As he said in Book 1, the 'architect' is wiser than manual workers (981a30) because he knows the end (*telos*) towards which their merely mechanical activity is directed (982b4-6, where knowledge of the end is described as *arkhikôtatê*, the most authoritative kind). Alexander preserves the meaning, if not the etymology, in calling such knowledge *epitaktikê*, 'authoritative', inasmuch as it oversees and issues commands, and he is correct in saying that *arkhê* in this sense is not *arkhê* in the previous sense of a productive principle. But when he adds, 'and capable of knowing the form', he introduces a quite different sense of 'art', defined as 'a capacity for making involving a true course of reasoning' (*EN* 6.4, 1140a10). In virtue of this capacity, the artisan begins to produce an object with prior knowledge of its form; he is therefore in fact

an *arkhê* in the sense of 'that from which the thing begins to come into being'. Perhaps Alexander adds this reference to form because the paradigmatic form pre-existing in the mind of the artisan is also the end (*telos*) towards which his productive activity is directed; cf. 347,26ff. and especially 349,9ff. below.

16. 346,31. This might perhaps be translated, 'for they too have a principle, i.e. knowledge of the end and of happiness'. Alexander means that propositions about the good such as he has just cited are immediate, i.e. indemonstrable, premises for the science of ethics, but that at a higher level they depend for their validity on a prior knowledge, e.g. of what 'good' is and how it is related to human actions. The short sentence that follows seems to extend this requirement to the immediate premises of all the particular sciences, which look to wisdom, i.e. metaphysics, for the validation of their axioms. Cf. *in Metaph*. 1: 'it is through the first principles that the other things that are knowable are capable of being known' (13,20).

17. 346,33-4. *arkhê* (principle) and *aition* (cause) are 'the same thing and a single nature', but they differ in their definition (*Metaph*. 4.2, 1003b22). Commenting on this text, Alexander describes the difference as the way in which we conceptualize the same thing: it is a principle inasmuch as it is prior to the things which are from it (*ex autou*), but a cause inasmuch as the things of which it is cause exist because of or through it (*di' auto*) (*in Metaph*. 4, 247,7-8).

18. 347,6. *tauta* (these) is ambiguous. Grammatically, it should refer to the immediately preceding *ta ektos*, extrinsic principles, but in the text which Alexander next quotes, Aristotle names first intrinsic, then extrinsic, principles.

19. 347,11. In suggesting that when Aristotle says 'nature and element' he means nature as matter, the sense assigned to *phusis* at 1014b26, Alexander's point may be that nature in its more usual sense of an intrinsic source of movement (1014b18) is not properly a 'constituent'. In this latter sense, nature is a principle that *enuparkhei* (is resident or immanent within the thing whose nature it is; see n. 32), but not one out of which a thing is constituted, as are matter and form.

20. 347,15-17. *ousia*, substance or essence, does not correspond to any of the senses of *arkhê* that have been given. Alexander seems correct in interpreting *ousia* in this context as the formal principle, perhaps by reference to later passages in Book 5 (1015a10 and 1022a14), and to numerous texts in which Aristotle identifies *ousia* with *to ti ên einai*, essence (1017b21, cf. 983a27, 988a34, 993a18). Alexander has said earlier: 'it is impossible for the substance of something to be separated from that of which it is substance, for the substance of each thing is *in* it' (*in Metaph*. 1, 105,30), but he now goes on to assert that *eidos* (form), with which he identifies *ousia*, is not a constituent of that of which it is the form. This interpretation is possible if *eidos* is understood, not in its primary sense as an intrinsic principle but as the *telos* which is the end of production (18), but then Aristotle's distinction between formal and final principles (*ousia kai to hou heneka*, 1013a21) is lost. Alexander in fact abandons this interpretation when he finally suggests that the formal principle in question is not *ousia* but the arts (30).

21. 347,17. Cf. *Metaph*. 5.4, 1015a10: '[Nature is] the form and substance, for the form is the end of coming-to-be.'

22. 347,21-3. But form as a principle whereby a thing can be known is intrinsic to, and a constituent of, that thing; cf. *in Metaph*. 1, 96,23: 'substance in the primary sense is the form, in virtue of which each thing has its being, and a thing is knowable through this form.'

23. 347,31. This statement is repeated at 348,18, but without the qualification *pôs*, in a way. The qualification is however necessary, because art is the form of its product only in the sense that the form of the thing to be produced pre-exists as a model in the mind of the artisan.

24. 348,6. 'In itself, evil can never be said to be a final cause, nor is it said to be such by Aristotle' (H. Bonitz, *Aristotelis Metaphysica, Commentarius*, Bonn 1849, 220. References are to the reprint, Wiesbaden 1960). In Alexander's explanation, evil is a cause only *per accidens*, in that we act to avoid it, not to acquire it.

25. 348,15-16. Omitting *kai hothen ... hê metabolê*, a description that cannot apply to *hê hulê*. This seems a better solution to the textual problem than Hayduck's proposed insertion after *enuparkhontos*, which leads to a repetition.

26. 348,19-21. Both text and meaning are uncertain. *ou mên ... diêirêsthai* yields no sense; the Latin translation of S suggests the reading *ou mên all' idiai diêirêtai* adopted in the

translation. But S interprets the final clause differently: 'And although cause has been separately divided, nevertheless principle (*arkhê*) can be divided into the meanings of cause, and cause into those of principle.'

27. 348,25. The Greek *legein* indicates both the way in which we speak about a thing or name it, and the meaning which we attach to that thing in so speaking about it. Hence *legetai*, very frequent in Aristotle's text and in Alexander's commentary, can be translated either 'is said' (to be), 'is spoken of, called', or 'means, signifies'. The latter expression is more natural in English, and is used in the translation when appropriate to the context, but it may suggest that, contrary to Aristotle's intent (n. 3), the emphasis is on the term rather than on the thing to which we apply that term.

28. 349,3-4. These words are in fact a direct quotation, as Hayduck prints them, but they represent a considerable abridgement of *Metaph*. 1013a26-9. The commentary that follows, however, shows that Alexander knew the complete text.

29. 349,4-6. The point of this exegesis is that 'the formula of the essence' is a kind of tautology, since the formula, i.e. the definition, is or contains the essence.

30. 349,8-10. Alexander is referring to the knowledge of the form in the mind of a human agent, which serves as a model according to which he fashions the object he produces. In his commentary on Book 1, he argues at length that nature and natural causes do not operate rationally (103,5ff.).

31. 349,26. This is puzzling, for how can the definition be its own proximate form? The explanation seems to be that in its first occurrence, *horismos* means the complete statement, 'the octave is the formula two-to-one', but that in the second instance *horismos* refers only to the predicate, 'the formula two-to-one', which, Alexander has said above (21), is the proximate form of the octave. The generic form is then not the specific ratio of the double, 2:1, but ratio in general, the proportion that all numbers exhibit in relation to one another. 'The things of which the definition is composed' are of course two and one, the 'parts' making up the definition of the octave.

32. 349,34-5. This immanent principle of movement is the thing's nature in the sense that Aristotle later defines *phusis*: 'the first element present within a growing thing from which its growth proceeds' (1014b17). Nature, residing within the embryo ('the thing coming to be') is the productive cause of the 'subsequent movements' through which the embryo develops into a complete organism. But because this nature is transmitted to the embryo by the one who generates, its efficacy as a cause depends upon the agency of the latter, specifically on his act of impregnating; the generator is therefore, although extrinsic to the embryo, the ultimate productive cause even of its growth. Concretely, nature acts through the soul, the vital principle in all living and growing things. Alexander later identifies nature, defined as an intrinsic principle of movement, with the enmattered form, i.e. the soul, present only potentially in the seed of the generator, but actually present in the animal generated (360,9-14; cf. 358,3). *tou poiêsantos* (35) is literally 'the one producing it', but Alexander is clearly distinguishing natural production, i.e. generation, from the production of artefacts, which he mentions next.

33. 350,9. Omitting *kharin*.

34. 350,22, *kath' hauto*. Because Book 5 deals with things expressed or spoken of in various ways, the Aristotelian distinction between things that are or that are said to be such-or-such *kath' hauto* (*per se*) and *kata sumbebêkos* (*per accidens*) occurs frequently. *kath' hauto* can be translated 'by its own nature' (Ross) or 'in its own right' (Kirwan), but the more literal 'in' or 'by itself' is adequate in most contexts. See however note 145 on the problem of *kath' hauto* predication, and the formal treatment of *kath' hauto* in ch. 18, 415,34ff.

35. 350,22, *kata ton auton logon*. *Logon* is a variant for Aristotle's *tropon*; the latter term occurs at 29 below.

36. 350,25. *kath' hauto kai* does not occur in the received text of *Metaphysics* (1013b6).

37. 350,26. The words outside the quotation marks replace Aristotle's *ou kath' heteron ti*, which, as Alexander goes on to explain, are the equivalent of 'not accidentally'.

38. 351,5, *ta stoikheia*, lit. 'the elements', i.e. the parts of which syllables are composed.

39. 351,6-15. Alexander begins this exposition with *êtoi* (either), but the correlative *ê* is so long deferred that he makes a new beginning at 15. Hayduck prints 7-15 as a parenthesis,

but the connection of these lines with what precedes and what follows is clearer if they are taken as an integral part of the whole. Alexander's first interpretation becomes unnecessarily complicated and even confusing because he regards *ta men gar ... aitia estin* (1013a17-21) as parenthetical to Aristotle's main argument. Aristotle himself begins by saying that the causes can be reduced to the four kinds well known to his auditors. He then gives a number of examples of causes that are 'from which', i.e. constituents, 'some of which are causes as substrate, others as essence' (b21-2), that is, that illustrate the first two types of cause, material and formal. But Alexander takes these examples as illustrating only different types of the material cause and the ways in which each of them is a substrate, although he subsequently (17ff.) offers a second interpretation that better reflects Aristotle's intent.

40. 351,9. *alloiôsis* (alteration) is surprising, since Alexander seems to be describing *genesis*, the coming-to-be of a new thing through the cessation of one form and the emergence of another. Here and at 12 below, *alloiôsis* may be used as a loose equivalent of *metabolê* (change), which occurs in the next line. But in precise Aristotelian terminology, *alloiôsis*, qualitative change that involves only a modification of the same thing, is to be distinguished from *genesis*; cf. *in Metaph*. 1, 24,1-7.

41. 351,9-11. Aristotle mentions *ta skeuasta* (artefacts) as things that have matter – in this case secondary and quantified matter – as a cause from which they are made, but Alexander contrasts them with things generated naturally through a composition of prime matter and substantial form. His statement, however, seems questionable, because a statue does 'come into being' from the union or composition of its material cause with the form, i.e. the shape, produced by the sculptor, although this composition of matter and form is only an accidental unity.

42. 351,11-12. Aristotle names fire and earth, instances of the elements, as causes of 'bodies', i.e. of more complex material structures. Alexander seems to interpret 'bodies' as a reference to the four primary bodies that combine in various ways to produce compounds.

43. 351,12-15. Aristotle says only that the hypotheses, i.e. the premises, are causes from which the conclusion results, but Alexander again understands him to mean that they are a kind of material cause. His explanation, however, is complicated. It seems to be that, taken apart from the conclusion, the premises are the cause that produces the conclusion, but that when the syllogism is taken as a whole or unity it is a composite of a material component, the premises, and a formal element, the conclusion. If this interpretation is correct, *kata sunthesin* (by their combination) refers to the combination, not of the premises with each other, a composition that *produces* the conclusion, but that of both premises with the conclusion, for it is this latter composition, analogous to that of matter and form in a sensible object, that constitutes the whole syllogism.

44. 351,17-23. Alexander is pointing out that at the beginning of this chapter Aristotle *distinguished* the material cause, 'that constituent from which a thing comes to be', from the form or essence, but that he now *includes* both material and formal cause under the designation, *aitia ex hou* (causes from which). But his explanation of the sequence of Aristotle's text is puzzling, for the abbreviated examples to which he refers come before, not after, what he thinks to be a new beginning (1013b21), at least if he is citing 'letters and syllables' as an instance of these. Were it not for this citation, the abbreviated examples might be Aristotle's 'parts, whole and combination' at b22.

45. 351,23-7. In Alexander's text the words given in the translation as a parenthesis are interposed between the two parts of the quotation from Aristotle, where they produce a very awkward reading.

46. 351,27-9. Alexander's point is that 'the whole' of which Aristotle speaks, which he makes synonymous with essence, i.e. form, cannot be the composite of matter and form, because form is only one constituent of such a whole. 'Whole' means rather the way in which the parts of a thing fit together to form its unity. It 'supervenes' because when the parts, e.g. the premises of a syllogism, have been properly combined, the form, i.e. the conclusion, comes into being and the syllogism is constituted as a whole. On form as a *holon ti*, see 424,29 below and n. 512.

47. 352,3. Aristotle's text has, *beltiston ethelei einai*, 'tends to be best' (1013b26).

48. 352,10. At *Metaph*. 1013b17, *tropoi* meant the usual four senses in which cause is

understood. Here however it means the subdivisions occurring within each of the four causes, a sense well expressed by Ross's 'varieties of the causes'.

49. 352,18. It seems anomalous to say, as Alexander does, that the more generic cause is *posterior* to the proximate cause which it includes, but he is thinking of the order in which we name the causes. If asked, What is the productive cause of this statue? our first answer would be to name the proximate cause – 'the sculptor' or 'Polyclitus'. From this point of view the proximate cause is said to be prior to the more remote cause – 'the artisan' – the genus or class to which sculptor belongs. Logically, of course, the more generic cause is prior to its specific instances, the proximate causes.

50. 353,1. *katholikên* (general) is apparently in reference to Aristotle's 'of *all* the causes ..., some are said to be potential, others actual' (1014a7).

51. 353,2-4. The proximate cause is particular, e.g. Polyclitus is the cause of this statue, whereas the generic cause that includes Polyclitus, artisan or man, is common, i.e. predicated of many sculptors. In Aristotle's text, this statement reads: 'the causes that include any particular cause are always causes of the particular causes' (or, 'of the particular effects', Ross). But Aristotle makes this statement well before he introduces the notion of potential and actual causes (1013b33), and it seems decidedly out of place at this point in the commentary.

52. 353,18-22. The *metalleus* could be either the miner or the worker who refines the ore, and Alexander may intend both senses: thus the miner produces a chunk of ore, 'matter in general' or the most remote material cause of a statue; the smelter refines this ore to produce bronze or this piece of bronze, the proximate material with which the sculptor works. Ross aptly cites *Phys*. 2.2, 194a33: 'the arts produce their material; some of them merely make it, others make it useful.'

53. 354,4-9. The six causes specified by Alexander are: (1) a *per se* proximate cause, a sculptor, or (2) its genus, artisan; (3) a particular *per accidens* cause, Polyclitus, or (4) its genus, man; (5) a combination of *per se* and *per accidens* causes, a sculptor and Polyclitus, or (6) *per se* and *per accidens* causes taken separately. But (6) does not differ from types (1) to (4), and what we would expect here is another instance of cross-pairing (*enallax*, 353,34) such as (5). Aristotle's text, however, is equally unsatisfactory at this point: 'and these either as combined or as stated simply' (1014a19).

54. 354,17, *kai ta kath' hekasta*. In Aristotle's text, quoted in full at 12 above (but with the vulgate *hekaston* for *hekasta*), *kai* is clearly epexegetic, and the whole phrase refers only to the causes, for the effects are mentioned separately. Alexander, however, interpreting the phrase out of context, takes *ta kath' hekasta* to mean both the particular causes and the particular effects, but understood thus, the words are incompatible with the rest of Aristotle's sentence.

55. 354,19, *oikodomos*. In the parallel passage at *Phys*. 2.3, 195b19, Aristotle says more accurately, *hode ho oikodomôn*, 'this man who is building', because an *oikodomos* (builder) can be either a man capable of building or one who is actually building.

56. 354,22-4. This is confused. If the house has already been built (*gegonuian*), its builder is no longer only a potential cause. Aristotle merely says, 'For the house does not perish at the same time as the builder.'

57. 354,35-6. Alexander is thinking of *Metaph*. 1014a27-31, where, after defining 'element' as the indivisible constituent of a composite entity, Aristotle says: 'for example, the elements of a spoken sound (*phonê*) are the things of which it is composed and into which it is ultimately divided, but which are not further divided into sounds different in kind from them; and even if elements *are* divided, their parts are of the same kind: thus a part of water is water, but [a part] of the syllable is not [a syllable].' The last clause points out a difference between natural elements (the four primary bodies) and the man-produced elements of human speech (syllables): the former *can* be resolved into completely homogeneous parts (a cup of water, e.g., into its constituent drops) – this, as Alexander notes at 30 above, is merely quantitative division, hence not excluded by 'indivisible' in the definition of element – but the sounds that are the elements of a spoken word (*Metaph*. 2.3, 998a23, 'the elements and principles of a spoken word are thought to be the first things from which [all] spoken words are composed') cannot be even quantitatively reduced to smaller but similar sounds. Alexander, however, regards

the syllable-elements not as unitary *sounds*, such as the syllable *hu-* and *-dôr* that make up the spoken word *hudôr*, but as a collection of the individual letters (upsilon, delta, etc.) out of which the syllables are compounded and into which they can be divided; and since these 'parts' of the syllable, unlike drops of water, are clearly 'different in kind', he concludes that syllables are, by definition, not elements of speech. This apparent misunderstanding of Aristotle's text recurs at 355,15 below; see the following note.

58. 355,15-18. These lines are difficult, and seemingly out of context, for they refer to the sentence that precedes the one on which Alexander has just commented (1014a31-5). What Aristotle actually says in that earlier text (quoted in full in the preceding note) is that a part of a syllable *is not a syllable*, not, as Alexander suggests, that the parts of syllables, i.e. letters (354,36), are not the elements of speech. His description of letters as the components of nouns and of the sentence seems to be based on *Poet.* 1456b20ff., where Aristotle defines a letter, which he calls a *stoikheion*, as an indivisible intelligible sound. Syllables are composed of these sounds, nouns are composed of syllables, and a *logos* is a complex significant enunciation (*phônê*), either a single utterance (a sentence) or a longer composition. From the perspective of this text, syllables, nouns and sentences are all *phônai*, speech or enunciations, and are composed ultimately of letters, presumably the simple, i.e. short, vowels (*phthongoi*) and semi-vowels or voiced consonants (*psophoi*) which Alexander mentions. But if he does have the *Poetics* text in mind, how can he say that the parts of syllables are not elements of speech? One possible explanation is that in saying *phônê idiôs* (speech as specifically such or in the peculiar sense of that term) he is distinguishing the semantic and phonetic function of letters: as *written*, letters are signs, not sounds nor elements of speech, but as *spoken* they are the indivisible particular sounds out of which more complex enunciations are composed. Cf. 368,27 below, where he calls vowels and consonants *stoikheia* (elements) and says: 'Every spoken sound made up of letters is measured by them.'

59. 355,18-23. *diagrammata* are geometrical proofs or theorems that involve more elementary proofs. The term occurs in a similar context at *Metaph.* 3.2, 998a25, where Alexander gives this explanation: 'In the case of the *diagrammata*, the elements are things implicit in proofs, those things that we use to prove every theorem, as we speak of "the elements" of Euclid' (*in Metaph.* 3, 202,13). Aristotle mentions basic logical proofs as a distinct instance of element, but Alexander seems to confuse the two types when he says, 'they', i.e. the elementary geometrical proofs, 'are not divided, in demonstrations, into other things different in kind', an almost meaningless remark.

60. 355,34. The received text has, *ê pasin ê hoti pleistois*, 'either in all things or in as many as possible' (1014b8). Ross thinks this an indication that by universals here, Aristotle means 'the rough generalizations of dialectic'.

61. 355,36ff. That the unit is an element is not Aristotle's view, but that of the Pythagoreans and Plato, who identified the unit with the point and used it to construct lines, planes and solids, so that it is 'present in every magnitude' (cf. *in Metaph.* 1, 55,20ff.). But according to Aristotle, the unit is not a point because it does not have position, i.e. extension in even one dimension; hence it cannot be an element of continua, although numbers are constituted out of units by the successive addition of 1's. Cf. *Phys.* 5.3, 227a27: 'it is impossible for [points and units] to be identical; for points can touch while units can only be in succession' (Oxford translation).

62. 356,5. *Metaph.* 4.2, 1003b22: 'being and one are the same thing and a single nature in the sense that they accompany each other as principle and cause, but not in the sense that they are manifested by a single definition.'

63. 356,15. i.e. of the thing as it actually exists. The genus 'animal' is predicated of Socrates and is part of his definition, but it is not one of his constituent parts, as an element must be. Cf. the sixth *aporia* in Book 3: 'whether the genera should be taken as elements or principles, or rather the primary constituents from which each thing is constituted' (998a21).

64. The received text has *hoi prôtoi ek tôn triôn* (1014b2), by which Aristotle probably means syllogisms make up of three terms and one middle term in contrast to a sorites, and at 38 below Alexander suggests this as an alternate explanation. But the reading he reports omits *ek*, so that he first interprets *tôn triôn* of the three figures of the syllogism.

65. 357,9, *to eis genesin eis phusin agesthai*. This cryptic expression seems to be based on

the text of *Physics* to which Alexander refers, where *phusis* in the sense of *genesis*, coming-to-be, is said to be *hodos eis phusin*, 'the road towards nature'.

66. 357,10. By their name, *phuta*, plants (lit. 'growing things') show a connection with *phuesthai*, to grow, and thus illustrate the first sense of *phusis*, growth. The vowel *u* is short in *phusis*, but long in most tenses of *phuein*. Aristotle suggests that if *phusis* is pronounced with a long *u*, its supposed etymological connection with *phuesthai* becomes clear.

67. 357,16. Aristotle's second definition of *phusis*, not quoted directly by Alexander, is: 'the first constituent from which *a growing thing grows*' (1014b17). Alexander takes this to be prime matter, which he later distinguishes from a thing's proximate matter. The latter, he thinks, is referred to in the fourth definition (358,36ff.). But prime matter is not a source of growth, so that Bonitz suggests that by 'the first constituent' mentioned here Aristotle means the seed, in contrast to one of the elements that are the matter of the fourth definition (op. cit. 229).

68. 357,29, *rhopê*. On the various meanings of this term in Aristotle see Bonitz, *Index Aristotelicus*, 668b. Here it has the dynamic sense of *dunamis*, an internal force that enables inanimate things to move, as at 421,20 below it is equated with *hormê*, 'impulse'. But cf. 397,21-4 and note 305.

69. 358,15-36. The text on which Alexander is here commenting (1014b20-6) follows the third definition of nature, that of the change that a thing effects by or within itself, and is, as Kirwan points out (op. cit. 130), Aristotle's attempt to explain how *growth* can be self-change, since growth depends on a source extrinsic to the growing thing. (Alexander, however, regards these lines as a return to the first definition.) Aristotle lays down the conditions under which one thing grows by being nourished by another. There is first *to haptesthai*, contact between the growing thing and its nutriment, but also required is either *to sumpephukenai*, the process whereby an organism converts food into its own substance, or *to prospephukenai*, in which the growing thing adheres to the source of its nutriment, as in the case of an embryo. *sumphusis* in the sense here described is 'organic unity' (Ross) or 'assimilation' (Kirwan), but Alexander's explanation goes beyond the case of nutrition to include that in which two or more things *grow together* in a spatial unity. *to sumpephukenai* is therefore translated 'to grow in union with' or 'together', as the version best suited to the various contexts in which the term and its cognates occur in the commentary.

70. 358,19. Aristotle does not mention plants, and Alexander later questions the example. It assumes that plants grow by directly ingesting nourishment from the earth, a theory perhaps suggested by Aristotle's statement that 'plants get their food from the earth by means of their roots, and their food is already elaborated when taken in' (*PA* 2.3, 650a21; Oxford translation). See further 423,11-13 and n. 499.

71. 358,22. In his explanation of *sumphusis*, Aristotle says: 'in things that are *sumpephukota* (organically one?) there is some one thing, the same in both of them, that makes them grow together instead of [merely] touching, and to be one with respect to continuity and quantity, although not with respect to quality.' This common factor seems clearly to be something intrinsic to the two things, such as their form (Kirwan). But Alexander's *horos* is an extrinsic limit (but see 363,19 and n. 97) that encompasses two things without in any way making them *one* in the sense in which Aristotle here describes *sumphusis* and as he defines it more succinctly at *Phys.* 4.5, 213a9: 'there is organic unity when both things become one in actuality.' Alexander in fact asserts that the unity of *ta sumpephukota* is *not* that of form (36 below), and thus points out an apparent contradiction in Aristotle's own description, for if two things are united in such a way that they become one, how can they be *qualitatively* different? Ross gives the example of bone and muscle, between which, he says, there is *sumphusis* and *sunekheia* (continuity), but in this context *sumphusis* cannot mean 'organic unity', but only 'adherence', as Alexander explains with reference to a similar example (33 below). On the union of bodily members, see further 363,29 below.

72. 358,27-8. In what is in effect a new interpretation, Alexander now takes 'growing in union with' and 'adherence' as mere extensions of 'contact' rather than as additional requirements for nutrition, so that the same thing with which the growing thing is in contact is also the source of its nourishment. This description might apply to the case of embryos, but the lines that follow suggest that any kind of contact implies adherence.

73. 358,35. In this final example, Alexander abandons even the requirement of actual contact between *ta sumpephukota*; the trees in a clump or grove 'grow in union with' one another only in the sense that they can be roughly circumscribed by the common boundary mentioned above.

74. 359,1. Reading *to toutou eidos* for *to tou eidos* (Bonitz after S).

75. 359,4-6. Aristotle's reference to natural things is puzzling in view of his own example of the statue. Ross explains that the statue is an example of *natural things* 'because *qua bronze* it does exist by nature' (op. cit. I, 297). Alexander tries to resolve the difficulty by citing Aristotle's subsequent reference to the primary bodies, but these do not seem to provide a reason for calling a statue a natural object.

76. 359,19. These words are quoted from the fragment of Empedocles cited by Aristotle (1015a2). The meaning of *diallaxis* is disputed; the sense of *dialusis* (dissolution) adopted in the translation is that given by Plutarch, but Kirwan follows Diels in translating 'exchange'.

77. 359,25-6. The point is that the composite consists of matter and form, each of which has already been called nature, so that to call the composite nature might seem tautological.

78. 359,27, *hê hulê prôtê*. As the sequel shows, this is not prime matter, but the qualified matter that is ultimate in any class, e.g. of all things that can be melted, a point more fully explained at 1023a26.

79. 359,31-2. The end, that is, of the generative process. He means that the *teleiôtes* (completed state) of a thing generated naturally, which he has above (12) identified with its substance and which is the end at which the process of becoming is directed, is already present in the form, although only potentially, at the beginning of the process; cf. 360,11 below.

80. 360,13. The sentence as printed contains three substantives, *genesis*, *arkhê* and *eidos*, and cannot be construed. The version of S, *ad materialem formam*, points to the reading *eis to enulon eidos*, with the sense, 'Coming-to-be is the beginning of movement towards the enmattered form'; but as Alexander goes on to explain, form as here conceived is the beginning, not the terminus, of movement. It seems best, then, to excise *genesis*, since Aristotle's text at this point has only *hê arkhê tês kinêseôs* (1015a17).

81. 360,14. In the text quoted at the beginning of this paragraph, Aristotle says that it is *substance* that is nature in the primary sense. But in his commentary on that text, Alexander has interpreted substance as the form of natural things, so that he now makes form, as the intrinsic principle of movement, the fundamental sense of nature.

82. 360,19. Alexander gets five senses by subdividing Aristotle's first definition, a *sine qua non* condition, into two types and by taking the necessity in demonstration as a type distinct from Aristotle's third definition, that which cannot be other than it is; the *eti* at 1015b6 supports this interpretation.

83. 360,20. Ross translates *sunaition* as 'condition', and the term *conditio sine qua non* is well established in the philosophical vocabulary. But the idea of 'cause' contained in the Greek word is important; food, for instance, is not only a necessary condition for animal life but its 'joint-cause' (Kirwan) as well.

84. 360,28, *ei allôs mê dunatai* (if it cannot be obtained in another way). Quite uncharacteristically, Alexander adds these words to Aristotle's text, an addition that P. Donini thinks significant: Alexander wishes to emphasize that what Aristotle defines as a case of necessity is such only conditionally because the agent can choose among other means to achieve his end. See 'Aristotelismo e indeterminismo in Alessandro di Afrodisia' (in *Aristoteles*: *Werk und Wirkung* II, J. Wiesner (ed.), Berlin 1987, 72-89) 86.

85. 361,16. If, that is, the demonstration proceeds from immediate and necessary premises. The exemplary form of necessary demonstration is the syllogism, which Aristotle defines as a *logos*, a sequence of propositions, 'in which, when certain things are posited', i.e. the premises, 'something other than what has been posited', i.e. the conclusion, 'follows *of necessity* because the things posited are', i.e. nothing beyond the premises is required to ensure the necessity of the conclusion (*An. Pr.* 1.1, 24b18).

86. 361,25-7. This sentence is a commentary on *Metaph.* 1015b9-11: 'Some things, therefore, have something else as the cause of their necessity; others do not, but it is because of them that other things are necessary.' Here Aristotle does not make explicit the connection between necessity and eternity that he will assert in ch. 30 of this book (1025a15ff.), but

Alexander takes this occasion to point out that as the first and indemonstrable premises are necessary in their own right and are causes of the necessity found in demonstration, so there are causes *of being* that exist of necessity and are causes of the necessary existence of other things. These are the first principles and causes (cf. 362,7-8), of which he has previously said, 'these would be principles of being, in virtue of which exist each of the things of which we predicate being' (*in Metaph.* 1, 9,9-11). These principles are eternal and are causes of other things that exist eternally, such as the universe. Things naturally constituted, i.e. sublunary beings subject to generation and perishing, are also eternal when viewed as the product of these eternal causes (*in Metaph.* 2, 148,24-6). The reference to the gods is conventional, a point better seen in the alternate reading of A: 'things naturally constituted have from the gods, who are eternal, the cause of their being.' This cause is nature itself, which from eternity has continued to produce its effects according to a necessary and invariable order. Although nature can be said to possess its productive capacity as a gift from the gods, 'it is not called a divine art as if the gods were employing this art, but because, being a power from the gods, it is capable of producing the right order of movement according to a certain harmonious sequence' (*in Metaph.* 1, 104,3-9).

87. 361,27-9. Alexander includes this case with those of immediate premises and eternal things, both of which are causes of absolute, i.e. unconditional, necessity, but it does not really belong here. In the example of this type of necessity given above, drinking medicine is necessary for a person's well-being, but only on condition that he wants to be cured. Medicine is however an *extrinsic cause* of the cure, and to this extent it may be compared to premises and eternal things.

88. 361,31-3. The translation transposes *khôris* to the end of the clause and supplies [*ekeinou*]. The text as it stands reads, 'and in the case of things without which the good can neither be nor come to be', a description not of things dependent on another, as in the parallel clause that precedes, but of those on which something else depends.

89. 362,24-5. i.e. 'Coriscus is musical' and 'Coriscus is musical Coriscus' are not two propositions.

90. 362,29. The second proposition now reads simply, 'Coriscus is musical'.

91. 363,2. Reading *ho* before *t'auton* (Bonitz). Alexander is thinking of the two accidents expressed in the two separate predications, 'Coriscus is musical', and 'Coriscus is just'.

92. 363,7. Aristotle gives a different explanation of the first alternative: 'either because *the musical* happens to belong to man, which is one substance' (1015b30). Alexander, however, makes both musical and man the subject of *sumbebêke tôi anthrôpôi*, an explanation that would seem to result in the redundant predication, 'Man is man'. What he apparently means is that in the first alternative 'man' is understood in the generic sense, while in the second both man and musical are predicated of this individual man, Coriscus.

93. 363,13-14. In contrast, that is, to the predication, 'Corsicus is man', which states what he *is*, not merely what he seems to be as a result of his various accidents.

94. 363,19. Reading *koinon ton horon* for *koinoteron horon* (Bonitz after S).

95. 363,24. Aristotle says only that the individual bodily members, such as an arm or leg, are continuous, but Alexander takes this to mean that the continuity is that of the unity of the members with one another. Especially unexpected is his reference to *sunaisthêsis*, the mutual perception that the members have of one another; in other places, he uses this term to describe the activity of the common sense in uniting the perceptions of the separate senses (*De An.* 15,17 and 65,9ff.; *in De Sensu* 36,12 and 163,12-14), although in one passage he gives the example of interlocked fingers: to sight they appear to be one, but because of the mutual perception (*sunaisthêsis*) resulting from their contact with one another, they would pronounce themselves many (*in Met.* 4, 321,28-30).

96. 363,29-31. These lines are not what Aristotle says, but are Alexander's attempt to explain the continuous defined as that 'whose movement is one in itself'. In fact, as Bonitz and Ross point out, movement is not part of the concept of continuity, which has been defined more satisfactorily in *Physics* 5.3: 'I say that a thing is continuous when the limits at which its two [parts] are in contact become one and the same and, as the word signifies, are contained in each other' (227a11-12). It is this definition that is implied in Aristotle's further discussion of continuity in the present passage.

97. 363,36. As the common boundary was described earlier (358,22) it enclosed several things within the same circumference, but here *sunaptomena* seems to have the same force as *sunekhomena*, contained in each other or fused together, since things joined in this way are being distinguished from those that are merely in contact, *haptomena* (364,1).

98. 364,2. *kuriôs* (in the primary sense) is clearly inappropriate here; what the sense requires is *koinoteron*, as at 363,16 above.

99. 364,8. In the *Progression of Animals*, *kampsis* is defined as 'change from a straight line to an arc or angle' (*IA* 708b22; Oxford translation), in contrast to straightening. Thus when an animal walks, it first flexes its leg into a bent or curved position, then straightens it out, so that the movement of the leg is not one, i.e. its parts do not move simultaneously, whereas shin and thigh, being rigid, have a single movement.

100. 364,9-12. According to the definition of *kampsis* (preceding note), a line is *kekammenê* (bent) either because it is curved or because it is broken off at an angle, but Aristotle speaks only of the latter case. This leads Alexander to suggest that a curved line, in contrast to a line having angles, is continuous, for his example, the circle, is a totally curved line (cf. *Metaph.* 1016b16, 'the line of the circle is of all lines one to the greatest degree'). If a segment of the circle moves, the whole circle must move; otherwise the moving segment would bulge out, thus destroying the shape of the circle.

101. 364,16-18. According to Aristotle, a point is not part of a line but only its terminus. A straight line can therefore rotate around a point, which remains at rest while the whole line moves with a single movement.

102. 364,21-2. Aristotle's point is simply that separate portions of the same thing do not give rise to different perceptions: all sugar, e.g., is perceived as granular, sweet, etc. Alexander adds, rather unnecessarily, that these portions *can* be differentiated by size.

103. 364,28, *tauta* (these things). The pronoun has no expressed antecedent. It presumably means all individual instances of wine or water respectively, the idea that Aristotle expresses by saying, 'wine is said to be one and water is said to be one inasmuch as they are indivisible in kind' (1016a20).

104. 364,37-8. Here the terminology becomes confused. In Aristotle's text and in Alexander's previous commentary, the *hupokeimenon* (substrate) called *prôton* (first or primary) is the proximate one, e.g. wine or water, and that called *eskhaton* (ultimate) is the remote substance from which both wine and water are derived. Now however Alexander describes the end products originating in the remote common source as *eskhata*, and that source as *prôton*.

105. 364,40. Prime matter is of course the ultimate substrate of all perceptible things, but is not itself perceptible; moreover, the substrate now being described is ultimate for distinct classes of things, those e.g. that can be melted or burned (cf. 369,31-4 below).

106. 365,2, *antidiêirêmena*. *Antidiairesis* is the Platonic division by dichotomy, although at 372,21 below Alexander uses it of a tripartite division. In the present text, the participle designates the classes or species that result when the genus is 'divided' by means of opposed differentiae such as rational and irrational.

107. 365,7-9. This remark seems to be parenthetical, and its import is not clear. Aristotle's statement is that things having the same genus are one in a way comparable to that in which those derived from the same ultimate matter are one. Alexander reverses the comparison, but without explanation, although in fact the logical unity of species under the same genus is less evident than the perceptible unity of juices or metals.

108. 365,12-14. In the Greek, *diaireton kat' eidos* (divisible by species) said of the genus contrasts perfectly with *adiaireton kat' eidos* (indivisible in kind) said of the substrate, but it seems better to give *eidos* its meaning as species in speaking of the division of the genus.

109. 365,22. At 1016a30, Alexander evidently read *ta anôtera toutôn*, bracketed by Jaeger but retained by Ross and Kirwan.

110. 365,27. Reading *to* for *tôi* (Bonitz).

111. 366,8-9. Alexander correctly understands this as a new type of *per se* unity, (*eti de*, again), that of specific unity in contrast to the preceding generic unity.

112. 366,20. i.e. are specifically one. In Aristotle's text this instance of quantitative difference is given first, and seems to be distinct from the instance of plane figures that

follows, for their difference is one of shape rather than of size. Alexander, however, mentions the plane figures first, and seems to consider them too as instances of quantitative difference.

113. 366,25ff. In Aristotle's text, this point seems to be a continuation of what precedes, but Alexander takes it as a distinct type of unity, that of the individual substance. His commentary up to 368,15 deals in general with *Metaph*. 1016b1-17, but within this broad framework it is difficult to establish a precise correspondence of commentary to text. Alexander himself seems uncertain about the sequence of Aristotle's argument: part of this, he thinks, is parenthetical (367,11), and its conclusion obscured by an ellipse (368,7-15).

114. 366,31. On the relation of *heterônuma* (things with different names) to Aristotle's classification of things as *homônuma* and *sunônuma* see J. Pépin, 'Clément d'Alexandrie, les *Catégories* d' Aristote, et le fragment 60 d'Héraclite' (in *Concepts et Catégories dans la pensée antique*, P. Aubenque (ed.), Paris 1980, 270-84), 274-9. Alexander defines *heterônuma* as 'things whose substrate is one and the same, but whose definition is not the same' (*in Top*. 5, 398,2-3; cf. a later passage in the present commentary, 379,20-2). As examples of *heterônuma* he mentions, in addition to ascent and descent, the indivisible and the smallest, seed and fruit (*in Metaph*. 4, 247,22-4). Dubious examples are those of a counterfeit coin and a drachma, a corpse and a man (379,22-3): see n. 209.

115. 366,32. 'Ascent and descent' seems a clear reference to fr. 60 of Heraclitus, 'the *road* up and the road down are one and the same', but in the continuation of the text from his commentary on the *Topics* cited in the preceding note, Alexander says: 'as is the case with ascent and descent, when both names are said about one thing, the *ladder*, for their substrate, the ladder itself, is one' (398,3-5). On this point see Pépin, op. cit. III, 'La référence d' Héraclite', 279-84. But in either case the sense is clear: 'ascent' and 'descent' are different names, each with its own definition, but a person ascends or descends by means of the same road or ladder.

116. 366,34-6. Accidents, that is, can be called a numerical unity because they coexist with their subject, a substance that is one thing.

117. 366,36. The case of things under a genus or species is being contrasted (*ta men*) with that of genus and species taken by themselves, but the *de* introducing the second case does not occur until 367,1.

118. 367,3-4. There is a grammatical problem here (the neuter relative *ho* is followed by the masculine participle *diairoumenos*), but the more serious objection against the printed text is that, after the statement about generic unity, we expect a similar statement about specific unity, so that what is needed is an example of a *species* taken in itself, i.e. without reference to the individuals in it. Hayduck therefore suspects a lacuna after *homoiôs*, where, citing *Metaph*. 1016b5, he would supply: 'and "man", if it were not divided *qua* man, would be one man.' Then the explanation, *toutestin* ... *diairoumenos*, follows naturally: 'I mean the [species] "man" that is not divided by the differentiae of man', i.e. into individual men, as he explains at 8 below. *ho* can be explained as neuter *secundum sensum* because the antecedent, 'man', is not an individual but the species 'man *qua* man', and *diairoumenos* as masculine by attraction to the immediately preceding *anthrôpou*.

119. 367,4. i.e. in explaining generic and specific unity at 1016a25-32.

120. 367,6. Reading *kath' ho* for *katho*. This is a paraphrase of Aristotle's 'whatever things have no division are said to be one *tautêi* in this respect, *hêi* in which they do not have it' (1016b4); Alexander adds the superfluous *pros ti* (in some respect) to explain *hêi*, the aspect in which things do not differ.

121. 367,8, *ho te* ... *adiairetos heis*, a somewhat clumsy paraphrase of Aristotle's *ei hêi anthrôpos mê ekhei diairesin, heis anthrôpos* (1016b5 quoted in n. 118), itself difficult to translate. Ross's 'if two things are indistinguishable *qua* man, they are *one kind of man*', (italics added) is clearly impossible. The revised Oxford translation has, 'if something *qua* man does not admit of division, it is one man', a line also taken by Apostle: 'if a man *qua* a man cannot be divided, he is one man' (*Aristotle's Metaphysics*, Bloomington 1966, 81). But the natural subject of *mê ekhei* seems to be the preceding plural, *hosa*, retained in Kirwan's version: 'if they are without division *qua* man they are one man.' But if this is so, all things to which the definition of man applies are one man, an untenable conclusion if the primary sense of unity is numerical unity. Alexander resolves the problem by interpreting *anthrôpos*

in Aristotle's text as the *infima species* under the genus 'animal'. 'Man' in this sense is undivided because it is taken in abstraction from the individual men in whom it is found. So too the genus 'animal' is one to the extent that it has not been divided by its differentiae.

122. 367,13. Reading *t'auton* for *heteron*; if a different effect is produced, there is no basis for unity. His point is that sugar and honey, although different substances, produce the same effect of sweetness on the tongue, and thus are one under the category of *poiein*.

123. 367,28. Earlier in this commentary, Alexander distinguished the *poluônuma* (things having several names) from the *heterônuma* (things having different names; see n. 114). Things in both classes have the same substrate, but each of the several names of the *poluônuma* is defined in the same way; his example is *phasganon* and *makhaira*, 'sword' and 'sabre' (*in Metaph*. 4, 247,27-9). In his commentary on the *Topics* he says, quoting Aristotle [*Top*. 103a10], that the *thing* signified by the several names is numerically one, as *lôpion* (mantle) and *himation* (cloak) (58,8-11), an example also given at *in Metaph*. 4, 281,24. On Alexander's treatment of polyonymy, see M. Mignucci, 'Puzzles about identity, Aristotle and his Greek Commentators' (in *Aristoteles: Werk und Wirkung* I, J. Wiesner (ed.), Berlin 1985, 57-97), 89-90.

124. 367,32-7. In the received text of *Metaphysics*, the sentence just quoted reads: 'we count as more than one either things that are not continuous or those whose form is not one *or those whose formula is not one*.' The final clause was obviously missing from Alexander's text; indeed, he cites the omission to confirm his second interpretation of Aristotle's 'one in form or formula', according to which the two terms have the same meaning (29 above). He points out that Aristotle names as separate instances of plurality both things that are non-continuous and those that do not have the same form, but that he fails to mention the case of those that do not have the same definition.

125. 367,37. Lit. 'of things whose formulae are more than one', but this might suggest that one thing has more than one definition.

126. 368,8. Alexander's text read *epei d'esti*. Modern editors print *eti d'esti*, as Alexander himself proposes at 15 below.

127. 368,11-12. The reference is to 1016b16, where, after two parenthetical clauses, Aristotle says, '*dio* (hence) the line of the circle', etc., thus beginning a new clause without having stated the apodosis to his initial *epei*-clause. Alexander's point is that the proposed *dia touto* (for this reason) would convert the *dio*-clause into the missing apodosis.

128. 368,15-16. Reading *to arkhêi* for *to arkhê*; Hayduck prints the latter but says in his apparatus that *arkhêi* is the correct reading. Alexander's version closely approximates the text of *Metaph*. 1016b18 given by Ross: *to de heni einai arkhêi tini estin arithmou einai*, 'to be one is to be a kind of beginning of number', although Jaeger reads *arkhê* and supplies *tou*.

In what precedes, Aristotle has divided things said to be one into those that are accidentally such and those that are one in themselves. He now turns to a definition of 'one' itself, so that the present definition is not a third *type* of unity, but an explanation of the concept of unity. Cf. *Metaph*. 10.1, 1052b1: 'We should recognize that the question, what sort of things are said to be one, must not be taken as identical with the question, what it is to be one and what the definition of one is.'

129. 368,16. 'Genus' is supplied from 1016b21, where Aristotle indicates that although he defines one as the beginning of number, he means that whatever is the smallest unit that can be counted in any class, or the first recognizable member of that class, is the 'one', i.e. the beginning of that class.

130. 368,20, *gnôrizomen ti*. Alexander's *ti* does not appear in the received text of *Metaphysics*.

131. 368,21. Reading *di' ho* for *dio*.

132. 38,31. *phora* (locomotion) is the first type of movement (358,9 above), but it is not a unit by which all movement is measured.

133. 368,32. A length of about 600 feet, the distance of the Greek footrace, but the term was also used of a much longer unit of measurement.

134. 369,2. Evidently, that is, a case of indivisible unity.

135. 369,3-4. In Aristotle's text, this section begins *eti de*, 'and again' (1016b31), as if this were a new division of unity; but as Alexander points out, the first three types of unity

mentioned here have been dealt with earlier, although in a slightly different fashion. Unity by analogy, however, is new.

136. 369,11. These are the *infimae species*, such as 'man' under the genus 'animal'; the individuals within these species have a common definition.

137. 369,15, *hôs allo pros allo*, lit. 'as some other thing is related to [yet] another'. Analogy properly involves four terms, as shown in Alexander's final example.

138. 369,17. This is somewhat confusing, since, in what precedes, numerical unity is mentioned before generic and specific. But here unity is conceived as proceeding vertically from its more general forms, generic and specific, down to its most specialized case, that of numerical unity, which therefore implies the forms above and prior to it.

139. 369,20. The words added are needed to complete both the thought and Alexander's paraphrase of Aristotle's text, which reads 'the later kinds [of unity] always imply those that precede them: for example, things that are one in number are also one in species, but things one in species are not all one in number' (1016b35-6).

140. 369,19-21, *epizêtêsai ... einai*. These lines are omitted in the translation. With this deletion, the sentence beginning *legei de* (21) forms a natural and coherent sequel to the one that precedes *epizêtêsai*. According to Hayduck, only the second part of the deleted text, *ê ... einai* (20-1) is corrupt, but the first part seems equally suspect. It reads, 'But one might ask how it is that things numerically one also possess unity by analogy, but not *vice versa*'. These words do not relate to anything in Aristotle's text; they are moreover simply incomprehensible in themselves. For it is impossible to conceive how a thing that is numerically one, and thus enjoys the most obvious kind of unity, that of self-identity (377,24-5), could be described as one by analogy, a unity that exists only in the intellect, which establishes a relation among things that are, in their own existence, totally different (23-6 below).

141. 369,22-3. Alexander is attempting to illustrate Aristotle's strange statement that, 'things that are one in genus ... are one by analogy' (1017a1-2). The second of his examples, man:animal :: horse:animal, is somewhat more valid than the first, but in neither case are there the *four* terms that analogy as previously defined requires. Ross speculates that Aristotle's extension of the principle, 'the greater unity implies the less', to unity by analogy, to which it is not applicable, is the result of inadvertence (*Aristotle's Metaphysics* I, Oxford 1924, 305).

142. 369,30-1. Plurality by reference to the matter or substrate is opposed to unity of the same sort explained at 364,18ff. above. There wine and oil were described as the final products of a single remote common matter in virtue of which they are one. Here they are different, and therefore 'many', because of their proximate matter or substrate; but Alexander confuses the point by adding that the *forms* of wine and oil are different. If they have distinct forms, it is these rather than their proximate matter that differentiates them.

143. 369,31-4. These examples do not illustrate how plurality results from a difference in the remote matter from which things originate. If one such remote source is water and another earth, their respective products, things that can be melted and those that can be burned, are certainly different things, but those in each class are one rather than many according to the earlier argument that generic unity results from origin in a common remote matter.

144. 369,34. See n. 125.

145. 370,3-4. Commenting on this text, Aquinas says: 'This division of being is not the same as that in which being is divided into substance and accident. This is clear from the fact that Aristotle himself subsequently divides *per se* being into the ten predicaments, nine of which belong to the genus of accident. "Accidental being", in the sense in which it is here used, must be understood by taking accident in its relation to substance' (not, that is, as the two are considered absolutely and apart from each other) 'and this relationship is expressed by the verb "is" ' (*In Metaphysicam Aristotelis Commentaria*, Cathala (ed.), 3rd edition, Turin 1935, 885). Thus Aristotle's concern is with predication: whether, that is, the verb 'is' signifies an accidental or necessary connection between a predicate and the subject of which it is predicated. When the nexus is a necessary one, the predication is *en têi ousiāi* (371,27): grounded, that is, in the essence of the subject. To express this idea, *to on kath' auto* is translated 'essential being'.

146. 370,8. The participle *on* is unrestricted and unspecified; the finite *esti* imposes a

definite shape or form that expresses a particular instance of being. Cf. *Phys.* 1.5, 188b19: 'anything that has been shaped (*eskhêmatismenon*) comes out of shapelessness (*askhêmosunê*).'

147. 370,9, *to einai*. Here the article is epexegetic, pointing to the term *einai*, 'to be' (thus at 29 below and at 371,14). But at 370,27 *to einai* is a single term, 'being', the act whereby something *is* or *exists* (but see 370,23 and n. 150). It is debated whether the verb *einai* in Aristotle's text has an existential sense as well as the copulative sense that is most obvious (Kirwan, op. cit. 140-1), but the existential sense is clear at several points in Alexander's commentary, e.g. 370,26 and 371,21ff. On the difficulty of understanding Aristotle's use of *einai* in this chapter, and for a new interpretation, see J.W. Thorp, 'Aristotle's use of Categories – an easing of the oddness in *Metaphysics* Delta 7', *Phronesis* 19, 1974, 238-56.

148. 370,13-15. Alexander takes up these questions in reverse order, dealing at length with the second (370,15-371,8), and more briefly with the first (371,8-17).

149. 370,21-2. Reading *ei touto mê kuriôs eien* (A), which Hayduck thinks the preferable reading although he prints *ei touto eien* (if they were that subject), which is impossible in this context. But the sense remains obscure; Alexander perhaps means that all the non-essential attributes belonging to a subject are merely accidents because they do not constitute it as a subject, i.e. as a substance.

150. 370,23. *to einai* has here the unusual sense of essence: things 'included in the essence', especially the genus, answer the question, *ti esti*, 'what *is* this thing?' and are predicated essentially; cf. 371,4-5 and 27-8.

151. 370,28, *eipoien*. *phamen* and *legontes* in Aristotle's text suggest that the correct reading is *eipoimen* (as if *we* were to say).

152. 370,27-32. In Aristotle's first examples of accidental predication, the copula 'is' is expressed: 'the man is musical', etc. Alexander points out that in the predication, 'the musician builds a house', the copula is not explicit, but is implied in the predicate 'builds'. This is true, but Aristotle's point is rather that in accidental predication, 'to say that one thing *is* another signifies that one thing is the accident of another' (1017a12).

153. 370,33. Reading *tode* for *tade*; Alexander is paraphrasing *to tode einai tode* (1017a12). But whereas Aristotle's statement applies only to the specific instances of accidental predication he has given, Alexander states a general principle that is not valid if the predicate (*tode*) is a genus, differentia, or property of the subject.

154. 371,5, *ek tês ousias autou*, lit. 'from his essence'. This might mean, if the predicate were part of the essence, as in the predication, 'man is animal'. But since the discussion is about the predication of attributes, Alexander seems to have in mind a proposition such as 'man is capable of learning', which predicates an essential attribute, i.e. a property, that results from the essence of the subject. But if this is his meaning, the ambiguous *on* in the second part of the statement leads to a confusion between the existential and predicamental orders. 'Capable of learning' is *kuriôs on* inasmuch as it is predicated essentially, but it is not *kuriôs on* in the sense of an independent existent; it merely coexists with the subject whose property it is.

155. 371,5 and 8. Reading *to mousikon*, neuter, for *ton mousikon*, masculine. Alexander is commenting on Aristotle's *to de mousikon anthrôpon* (that the musical is man, 1017a17), a case in which the subject is predicated of its attribute. The proposition, 'the musician is man' (1017a9 and 14) is irrelevant and misleading in the present context.

156. 371,8. In the natural form of predication, 'man' functions as the subject of which the attributes are predicated.

157. 371,10-12. These two cases refer to examples given by Aristotle that Alexander does not quote: 'he who is pale is musical', and 'the man is musical' (1017a12-15).

158. 371,19, *katêgoriôn*. The plural is awkward. Aristotle says, *ta skhêmata tês katêgorias*, 'the figures of predication'.

159. 371,21-2. *suntassesthai* suggests a military metaphor: the verb 'is' takes its place in rank along with its subject. Of itself, 'is' is ambiguous (*homônumon*, 23); but in each particular occurrence it expresses a specific modality corresponding to the way in which its various subjects (e.g. Socrates, a cubit, colour) are *onta*, beings, i.e. whether as substance, quantity or quality. But see 29-30 below, and n. 164.

160. 371,23. *homônumon* does not mean equivocal in the strict sense defined in *Categories*,

but in the wider sense in which something is predicated analogously of things that, although different, have a common reference. See Alexander's explanation of the term in n. 7.

161. 371,22. As being (*to on*) is equivocal, i.e. analogous, so too is the existence (*huparxis*) that being signifies. Thus 'the existence appropriate or peculiar (*oikeia*) to each thing' means the *way in which* different things have their being (*to einai*): whether, that is, as substance or accident (the present text); or as extra-mental in contrast to notional objects (*in Metaph.* 4, 322,22; cf. 323,10, 326,8); or as universals in things and in the intellect (*De An.* 90,4); or as mathematical abstractions (399,15); or as artefacts (359,35). Hence *huparxis*, like *ousia* in the sense of 'reality', signifies a specific *mode* of existence, a phrase used by ps.-Alex. in expanding a text of Aristotle (1076a36): 'we are not debating whether mathematical objects exist (for we assert that they do), but about the mode (*tropos*) of their existence, how sc. they possess being (*to einai*): whether they exist actually and independently, or in sensible things, or by abstraction' (*in Metaph.* 13, 725,25).

162. 371,27. *en têi ousiāi katêgoreisthai* is Alexander's explanation of Aristotle's *en tôi ti esti katêgoreisthai*; thus when Aristotle says, 'whatever is predicated *en tôi ti esti*, essentially' (*An. Pr.* 1.27, 43b8), Alexander paraphrases, 'whatever is included in the *ousia* and is predicated essentially' (*in An. Pr.* 1, 295,27). Cf. *in Metaph.* 4, 388,6: 'such things as are in the *ousia* and are predicated *en tôi ti esti*, essentially.'

163. 371,27-8. Property (*to idion*) is not mentioned among the essential predicates, although it is an essential and not merely accidental attribute (see n. 154). In *Topics* 1.5, Aristotle defines essential predicates as those that best answer the question, 'What is the object before you?' (102a33), and in the text from *Prior Analytics* cited in the preceding note, he distinguishes predicates included in the essence (*en tôi ti esti*) from properties and accidents. In commenting on this text, Alexander explains that both the definition, e.g. 'man is rational animal', and its parts, the genus 'animal' and the differentia 'rational', are predicated *en tôi ti esti* (essentially) because without either of these man would simply not exist (cf. *in Metaph.* 4, 285,13ff.). But a property such as 'capable of laughter' is not predicated *en tôi ti esti*, for it is not included in the definition nor is it the kind of attribute without which man cannot exist if he is deprived of its exercise (*in An. Pr.* 1, 295,31-296,5). Alexander fails to note, however, that a man who is somehow prevented from actually laughing retains the capacity for laughter, as one who has no opportunity to learn grammar (*Top.* 102a20) retains the capacity to do so.

164. 371,28-9. Note that as *suntassomenon* (aligned with or attached to) was used above, it described the relation of the verb 'is' to the subject: in the predications 'substance *is*' and 'quality *is*' the verb 'to be' signified the kind of being of which it is predicated. Here however 'is' is aligned with the predicate to express a necessary connection between the predicate and that of which it is predicated, as in the predications, 'man is *animal*', 'colour is *quality*'.

165. 371,31-2. This is surely a forced interpretation of what Aristotle says, for in his example, *anthrôpos hugiainôn estin*, the copula is not attached to *hugieia* (health), but to the participle *hugiainôn* (regaining his health). Aristotle's examples are in fact puzzling, because they are not instances of essential predication, as we would expect. But Alexander attempts to treat them as such by emphasizing the verb *esti*: ('health *is*, walking *is*'), in the sense that they *exist*. The text that he next quotes, however, does not support this interpretation, for in it Aristotle treats the verb 'to be' as a mere copula, without reference to its existential sense.

166. 372,2-4. In these predications, *ésti*, with the acute accent, is not the mere copula but has emphatic force; in effect, 'It is *true* that Socrates is musical.'

167. 372,4. *apophatikôs* (negatively) is awkward. 'Not-pale' is a negative predicate, but it is being affirmed of the subject, and the predication is true. In the next example, an affirmative predicate, 'commensurable', is denied of the subject, and this predication is also true. Hence it is not the case, as Alexander says here, that truth is found in affirmation and falsity in negation, but rather, as he said above, quoting Aristotle (1017a32), that 'is' and 'is not' signify truth or falsity in both types of statement. Cf. 433,11: 'there is a true statement even about things that are false', e.g. the assertion, 'the centaur does *not* exist', which, although stated negatively, is a true statement.

168. 372,11. Potential and actual being is not, however, a fourth meaning of 'to be' parallel to the three ways in which the verb may be predicated, as Alexander's *pros* (in addition to)

implies. This distinction names two senses of being that include each of the predications already mentioned.

169. 372,12-13. Alexander evidently read *to men dunamei rhêton* (1017b2). *rhêton* is bracketed by Jaeger; Ross retains it in his text but omits it in his translation. Alexander proposes to transpose the term so that it can be construed: *to men* [*on*] *rhêton dunamei*, being can be spoken of as potential.

170. 373,2. By *to kuriôs on* (being in the primary sense) Alexander usually understands substance, but since substance is one of the categories, his present statement seems to mean that the division of being according to the categories is the fundamental way in which to distinguish it.

171. 373,5-8. The second interpretation is confirmed by a similar passage in Book 7, where, as examples of substance, Aristotle names animals, plants, natural bodies and their parts, and the heaven and its parts, the stars, the moon and the sun (1028b8-13). Alexander mentions *daimones*, divine beings somehow different from the gods (cf. *in Top*. 3, 221,21) to provide an example of celestial things comparable to animals, as the stars are comparable to natural bodies.

172. 373,28-31. 'Parts of a body' in the strict sense are those elements which, taken collectively, make up a natural body and to which that body can be reduced, as the members of an animal's body. Aristotle extends this notion to the boundaries enclosing a mathematical body – the solid. Although he does not regard lines and planes as 'parts' out of which the solid is constituted, the solid cannot be conceived or defined without reference to them.

173. 373,33. If the planes were not marked off by lines, they would coalesce, so that it would be impossible to point to this or that surface of a plane figure.

174. 374,1. *perigraphê* (outline) is the line marking the limits of each plane figure. It is peculiar (*oikeios*) to that figure either because it distinguishes it from others of the same kind, or because it delineates different kinds of figures, e.g. circle and square; cf. 8 below.

175. 374,1. The reference is to Aristotle's 'parts that are present in such things', which appears in the translation as 'those constituent parts'. In his paraphrase, Alexander says *tisin* (certain things) rather than *tois toioutois* (such things), perhaps because of the several interpretations of this phrase that he now offers. But his concern with this minor point seems unwarranted, nor is there any real difference among his three interpretations.

176. 374,7. For *morphê* in this context, cf. 375,28 below and n. 184. But 413,28ff. seems at odds with the present text; see n. 416.

177. 374,8-12. Alexander again finds a difficulty where there seems to be none. He first suggests an obscure distinction between *tade* (these things) and *toiade* (things of this kind), but surely a cube, e.g., is both a this-something and a thing of this kind. He then reverses himself on the ground that Aristotle says that line and plane 'signify this thing', something that is at best implied in Aristotle's text. His final interpretation is in effect the same as the second.

178. 374,20. It is not clear to what philosophers Alexander is referring, nor why he thinks it necessary to introduce the possibility of an infinite body, which corresponds to nothing in Aristotle's text. And the point he is making verges on absurdity, for since an infinite body *has* no limits, it obviously cannot be destroyed by the destruction of these non-existent limits.

179. 374,26. i.e. surface is to body as plane is to surface; plane is to surface as line is to plane; line is to plane as point is to line. In each case, the relation is that of a limit to that which it limits.

180. 374,29. Again it is not clear what philosophers, if any, Alexander has in mind. He pointed out previously that although the boundaries of a body are not parts to which the body can be reduced, they are parts of the definition of body (373,29). A body defined without reference to its boundaries might be the infinite body mentioned above, or a merely theoretical possibility.

181. 375,3-7. That is, essence, more concretely the question, 'what was it for something to be?' is applicable to anything, not only to the 'first substances', i.e. actual existents such as animals that are given as the first definition of *ousia*. Although substance in Aristotle's second definition, the form of natural things, can also be called substance as essence, which is his fourth definition (cf. the text quoted in the next note), the second definition applies only to

the formal cause of perceptible bodies, whereas this fourth definition, as Alexander points out, includes any essence whatever.

182. 375,9, *ousia tis*, lit. 'a kind of substance'. The indefinite *tis*, not in Aristotle's text, is Alexander's suggestion that this fourth definition of substance is a somewhat improper use of the term; it is wider than the second definition, but includes it. Cf. *Metaph.* 7.10, 1035b14: 'the soul of animals (for this is the substance of a living thing) is their substance according to the formula, i.e. the form and the essence of a body of this kind.'

183. 375,9-13. It is not clear why Alexander thinks it necessary to differentiate two meanings of *eidos* (form), a term that does not occur in Aristotle's four definitions of *ousia*, but his distinction makes no sense if Hayduck's text, *allou de hôs autou einai* (11-12), is retained. The translation therefore adopts Bonitz's conjecture, based on S, *autou tou*, and understands *ontos* after *allou de* to preserve a parallel structure with *henos men ontos* (10). If this reading is accepted, these lines deal with the metaphysics of composite being. A natural form, i.e. one united to matter, is the cause of being for the composite substance whose form it is, in this case an animal. Now the being (*to einai*) of an animal is its life (*to zên*) (Ar. *DA* 2.4, 415b13), and the soul is cause of life because it is the first part of an animal in which life resides *per se* (cf. 416,15-18 and n. 434). But the life that the soul confers on an animal is limited and determined by the essence that receives it, and this essence is composed of two principles, 'for each of the things that exist exists and is said "to be" not only in virtue of its form but also in virtue of its matter ... ; this is the case with every composite substance' (415,4-9; on this point see further Alex. *in Metaph.* 2, 160,30-166,1 and my notes *ad loc.*). In an animal, this material principle is an organic body of a certain kind having life potentially, so that the being that the animal receives from its soul is not simply life, but life of a specific kind proportionate to its essence, and *this* being, as Alexander says, is distinct from the soul that is its cause.

184. 375,14-17. The reference is to Aristotle's third definition of *ousia* (1017b17ff.), but the term *morphê* (external form) does not occur in that text, and when Alexander introduces it as an explanation of *perata*, boundaries (314,7) he does not equate it with *eidos*.

185. 375,22, *pasa hê atomos ousia*. In light of what follows, this must mean that not only is the composite, Socrates, an individual substance but also each of his intrinsic principles. In strict propriety, of course, neither the form nor the matter that together constitute this individual, Socrates, can be called an 'ultimate subject', as substance has just been defined; but they are here subsumed under that designation because, as they exist *in* Socrates, they are *this* form and *this* matter, i.e. individuated, and, like Socrates himself, they cannot be predicated of a subject.

186. 375,23. The term *prôton eidos* (primary form) is unusual, and its meaning not clear. In light of his subsequent explanation (376,5ff.), Alexander may mean the form in virtue of which a thing is 'first substance' in contrast to 'second substance', the universal. Substance in this primary sense is a *tode ti* (this particular thing), and what is responsible for its being such is, as he there says, *hê kata to eidos ousia*, substance in the sense of form. But by 'primary form' he might also mean the substantial form, in virtue of which an individual substance is the subject of accidental forms that inhere in it; cf. his description of *atomos ousia* (individual substance) at 373,14 above.

187. 375,18-26. The natural interpretation of *Metaph.* 1017b23-6 seems to be the one adopted by Alexander, in which *kai ho an tode ti on kai khôriston êi* is a second definition of substance explicated by *toiouton* (25) with proleptic reference to *hê morphê kai to eidos*; thus Ross translates: 'substance has two senses, (a) the ultimate substratum ..., and (b) that which is a "this" and separable – and of this nature is the shape or form of each thing.' But C. Georgiadis would refer *toiouton* not to the following *tode ti kai khôriston*, but to the preceding *ousian* (23), so that the sense is: 'substance is said in two ways: (1) that which is both (a) the ultimate subject ... *and* (b) *a this and separable* (italics added); substance is also (2) the shape or form of each thing' ('The Criteria of Substance in *Metaphysics* Delta 8, 1017b23-6 ...', *Bulletin of the Institute of Classical Studies* (London) 25, 1978, 89-91.

188. 375,29. *hê te kata ta skhêmata* (and substance by reference to figures) seems to be an unwarranted intrusion in the text. Alexander is explaining that the second, third, and fourth meanings of substance specified by Aristotle can be reduced to a single type, that of *eidos*

(form). Consistently with his previous exegesis, he identifies the first two meanings as soul and as the boundaries of bodies, which give bodies their external form (*morphê*). The third meaning, substance as essence, should follow at once, but in the text as printed this meaning is preceded by the reference to shapes. *kata ta skhêmata* seems obviously intended as an explanation of *morphê*, as at 14 above, where *morphê* was qualified by *exôthen* (external), omitted here. The difficulty would be resolved if *te* were excised, so that the sense would be: 'for bodies have their form (*morphê*) – form, that is, in the sense of their figures – in virtue of these limits.' Thus ll. 27-9 would constitute the description of a single type of substance, as the sense demands.

189. 375,29. In his first interpretation of Aristotle's *ho an tode ti on kai khôriston êi*, Alexander takes *khôriston* in its natural sense as a predicate: 'whatever, being a this, is also separable', and in this interpretation the thing in question is substance. He now suggests that *khôriston* might be understood as being attached (*proskeimenon*) or attributed proleptically to *eidos*, which occurs at the end of Aristotle's text, so that the sense would be: 'whatever, being a this, is also a separable form.'

190. 375,32, *logôi* (by its formula). Cf. *Metaph*. 8.1, 1042a26: 'in another sense substance is the formula or form (*morphê*), which, being a this, is separable by its formula', i.e. can be defined apart from matter.

191. 376,1. Since this is also true of natural forms, he presumably means, '*not only* in thought, but in their actual existence (*hupostasis*)'.

192. 376,2-3. i.e. according to the distinction between 'first' and 'second' substance made in ch. 5 of *Categories*; cf. n. 186.

193. 376,7. In this interpretation, *to khôriston* means what is actually separated, and refers to the substrate of form rather than to form itself, as in the previous interpretation.

194. 376,10. By *to eskhaton hupokeimenon* (1017b23) Aristotle does not mean prime matter, but the individual composite of matter and form (cf. b10-14). But Alexander seems to interpret the term as meaning prime matter, which, although not a 'this', is not predicated of anything, as he said above (375,24).

195. 376,10-12. In this explanation, the enmattered form, although a 'this' only because it is joined to a particular portion of matter, and 'separable' only in thought, is substance in the primary sense because it makes the separate being of which it is form not only a 'this' but this particular thing, Socrates, e.g., rather than Coriscus.

196. 377,25-6. See nn. 114 and 115.

197. 377,27. The point of this obscure remark is found in the complete text of which Alexander quotes only the final part: 'Sameness is a kind of oneness either of the being of more than one thing or when [one thing] is treated as more than one' (1018a7). Alexander has suggested that the *heterônuma* exemplify the first type of sameness because they have a single matter. But, he adds, when Aristotle says 'one matter', he means the case of self-identity, as when a thing is said to be the same as itself: in such predications, one thing is being treated as more than one.

198. 373,33, *kat' eidos*. *eidos* has here the technical sense of 'species' rather than the general sense of 'kind'. Copper and iron *diapherei kat' eidos* (are specifically different), but have an ultimate substrate that is *hen tôi eidei* (one in kind). This case illustrates generic sameness, as the example of the statues illustrated specific sameness.

199. 377,35. Alexander does not say *kath' hauta* (in themselves), but he is referring to Aristotle's second type of *per se* identity, *kai hôn hê ousia mia* (and things whose substance is one), 1018a6.

200. 378,2. Reading *ousian kai kata* for *ousian kata* (Hayduck).

201. 378,7, *hôn eidê pleiô*. See n. 125.

202. 378,14. The difficulty implied by this question seems contrived, because the *heterônuma*, although the same in respect to their matter, are different in definition. The obvious answer to the question, however, can only be inferred from what Alexander says.

203. 378,17-25. Aristotle's complete text reads, 'Things are called other if either their forms (*eidê*) or their matter or the formula of their essence is more than one.' This seems an obvious classification of three types of otherness: material, formal, and essential. But Alexander proposes to divide the text into two parts, the first of which, despite its apparent

reference to forms, is concerned only with matter. To sustain this interpretation, he takes *eidê* in Aristotle's text as meaning 'species' or 'kinds' rather than 'forms'.

204. 378,31. Alexander suggests that Aristotle's *mê monon* (not only) is to be understood as meaning *monon mê* (only not), a difficult interpretation but one accepted by Bonitz and Ross. See further n. 206.

205. 378,35-379,1, *dunatai de ... ta genei*. This clause is grammatically impossible, and is omitted in translation. The words up to *morphên* are missing in LF and in the version of S, but *kai ta genei* are equally meaningless. With this omission, the statement beginning *dunatai gar* at 379,1 connects reasonably well with that ending at *kat' arithmon*, 378,25.

206. 379,3-8. Aspasius, that is, understood *mê monon* in its natural sense of 'not only in number' taking it in conjunction with 'are other'; and referred 'either in species or in genus or by analogy' to 'while being the same thing'. On the two interpretations, see P. Moraux, *Der Aristotelismus bei den Griechen* II, Berlin 1984, 247-8.

207. 379,8-10. If to be other in genus is to be other in every respect, as Alexander explains, this second meaning of 'different' goes counter to the first definition, 'things that have their otherness while being in some respect the same'; although we would certainly not hesitate to say that animal and colour are 'different', a looser use of the term that Aristotle himself at times condones – see, e.g., Book 4.2, 'difference is a kind of otherness' (1004a21). But in his more precise treatment of this question in Book 10.4, he denies that difference and otherness are the same, on the ground that what is different from another must differ from it in some definite respect, something not required in the case of things that are simply other, 'and this identical thing [by which things differ] is genus or species ...; genus is said to be that by which [two] different things are both the same in respect of their substance' (1054b23-31). Hence things other in genus are not different, a conclusion that is later clearly stated: 'it has been shown that there is no difference between [something and] the things outside its genus' (1055a26).

208. 379,12-15. Man and horse are different species within the same genus, animal, but they are not contraries, as are black and white within their genus, colour.

209. 379,19-20. Earth and water themselves are not contraries, but wetness and dryness, the qualities that distinguish them, are such.

210. 379,22-4. The context suggests that Alexander is offering these as examples of heteronymy, and Ross so interprets the text (op. cit. I, 313), but they cannot be such. A counterfeit and genuine coin, like a corpse and a man, do have a specious external similarity, but their otherness is not only in their substance, i.e. their definition, but also in their substrate: that of the counterfeit is a base metal in contrast to gold, and that of the corpse is disintegrating flesh in contrast to the living tissue of a man.

211. 379,26. At 375,13-15, Alexander distinguished *eidos*, 'form' in its proper sense, from *morphê*, the external form or shape. But here he equates *eidos* in the sense of 'appearance' with *morphê*, as at 380,7 and 417,13 below.

212. 379,27. Twin sons of Zeus by Antiope (Homer, *Od*. 11, 260ff.). But the title *hoi Dioskuroi* usually designates Castor and Polydeuces (Pollux), the twin sons of Leda and Tyndareus, a mortal (*ibid*. 298ff.), who were accorded divine honours as the constellation Gemini.

213. 379,36. Reading *onta* for *panta*, as suggested by Hayduck.

214. 379,38, *enantiôseôn* (contrarieties). At 17 above, this term signified merely opposition of any kind. Here however it paraphrases Aristotle's *tôn enantiôn*, contraries in the precise sense: those pairs of extremes within a genus, e.g. hot and cold, wet and dry, white and black, that make *alloiôsis*, qualitative change, possible. According to Aristotle, one thing is like another if it shares with the other 'most, or the most important, of these contraries' (1018a18). In Alexander's example of wine, the contraries are white and black (colour) and sweet and bitter (taste and aroma); cf. his *De An*., 421a26ff.

215. 380,3-6. Bonitz remarks that this fourth meaning of similarity can scarcely be distinguished from the first two, but Alexander attempts to show how the types differ: the second involves simply more qualities of any sort, e.g. size and shape, whereas the qualities referred to in the fourth are the contraries that make alteration possible.

216. 380,12-13. See *Cat*. 10, *Top*. 2.8 and *Metaph*. 10.4, 1055a32ff. and 10.7

217. 380,14. Aristotle's full text reads, 'and the extremes from which generations and perishings [proceed] and in which [they terminate]'. Alexander's quotation omits *kai eis ha eskhata* (and the extremes in which [they terminate]), but these words are implied in his subsequent commentary.

218. 380,24. This last suggestion can hardly be taken as a possible interpretation of Aristotle's text, for it would mean that generation and perishing, rather than being the process of change, are themselves the extremes between which change takes place.

219. 380,26-30. Intermediate or 'mixed' attributes are those constituted out of contraries, as the colour grey is a mixture of white and black. Although Aristotle at first suggests that not only the contraries but also their intermediates are opposites, his final remark ('hence their contituents are opposed') seems to restrict opposition to the contraries, and it is thus that Alexander says that the intermediates 'are not called opposites'. The same thing cannot be simultaneously both white and grey, but this fact does not entitle us to say that white is opposed to grey. But he next proposes two interpretations that conflict with his first reading of the text, although he finally reaffirms the latter (37 below).

220. 380,33-7. This interpretation supposes *two* intermediate attributes, e.g. grey and purple. They are opposed to each other because the same subject cannot simultaneously possess both of them, but also to each of their constituents because a subject that is grey or purple cannot be either white or black.

221. 380,38-40. The consequence referred to is the impossibility that certain attributes should coexist in the same subject. It applies in the first instance to opposites that are primarily such, e.g. contraries, but is extended to the case of intermediate attributes by reference to the contraries of which they are composed.

222. 381,3. Alexander read *dio* (hence), which Jaeger changes to *dioti* (because).

223. 381,10. Alexander has in mind *Cat.* 14a23, where justice and injustice are said to be under the contrary genera of virtue and vice. These latter, however, are under the supreme genus *hexis* (having); cf. 382,12 below. Alexander probably means that there is no subordinate genus intervening between the sub-genera, virtue and vice, and the supreme genus, *hexis*.

224. 381,22. Alexander first attempts to explain the seeming redundancy of Aristotle's second and third definitions of contraries by reference to the type of contraries involved. According to this explanation, the third definition is narrower because it includes only extreme contraries that cannot exist at any time in the same subject; thus, rational and irrational, unlike black and white, do not succeed or replace each other. But he then suggests that the third definition, although different, is merely another formula of the same thing, so that the presumed difference is only a matter of words.

225. 381,33. This last interpretation of *dunamis* seems to be that which Aristotle himself intends, for in his treatment of contraries in Book 10, after saying 'things under the same power that differ most', he adds, 'for one science deals with one genus' (1055a31), and therefore with the contraries within that genus.

226. 381,37. This very broad definition is the basis for Aristotle's later treatment of contrariety at *Metaph.* 10.4: 'since things that differ can differ to a greater or lesser degree, there is also a greatest difference, and this I call contrariety' (1055a3-5).

227. 382,11-12. These examples are somewhat disconcerting; more likely contraries within the species 'man' would seem to be such pairs as male-female (cf. *Metaph.* 10.5, 1058a30), infant-adult, or Greek-Persian. The first two examples are in fact instances of contradiction, but of the sort that is equated with privation, as Aristotle explains at *Metaph.* 10.4: 'clearly contradictories and contraries are not the same; but privation is a kind of contradiction ... . Privation is a contradiction or incapacity that is determinate, or taken together with the subject capable of receiving [the positive perfection]; therefore there is no intermediate between contradictories, but some instances of privation admit of an intermediate' (1055b3-9). Thus 'not to have knowledge' is a privation for man, who has a natural capacity for this perfection (*Metaph.* 5.22, 1022b24); but in this case 'to have knowledge' and 'not to have knowledge' are not mere contradictories, because an intermediate state is possible: unless he is mentally defective, a man is not completely ignorant, although his knowledge may be at a comparatively low level. But to make this point more clearly,

Alexander adds the example of having virtue or vice, for the majority of men are neither saints nor villains, but fall somewhere between these extremes (*Metaph.* 10.4, 1055b23).

228. 382,13-15. These lines qualify Alexander's final example of specific contraries. He recognizes that in naming virtue and vice as contraries within the species 'man', he might seem to be confusing species and genus, for virtue and vice are *states*, and thus come under *hexis*, which is not a species but one of the supreme genera; indeed they are themselves genera, more properly sub-genera (381,10, see n. 223), the species of which are the individual virtues and vices and their contraries. He would be guilty of error only if he wrongly assumed that 'state' is a species; thus the initial *gar* (for) in this statement marks an extreme ellipse: '[I do not mean that virtue and vice are species] *for* that would involve a false assumption,' etc.

229. 382,15-16. The issue here is the second part of Aristotle's fifth type of contrariety, 'things whose difference is greatest ... with respect to ... species'. Alexander has first explained that these are the extremes within the same species; he now suggests that things whose difference is absolute are also specific contraries. But this explanation is unintelligible, for things that differ absolutely, e.g. animal and colour, are not within the same species or even the same genus, and hence lack any common element on the basis of which they can be compared; cf. *Metaph.* 10.4, 1055a6-7: 'Things that differ in genus have no path to one another, but stand too far apart and are not comparable.' Alexander in fact makes this point clearly at 379,10 above (see n. 207) and also at 384,26 below.

230. 382,21-3. Above, however, rational and irrational are named as contraries in their own right inasmuch as they are the differentiae of the genus 'animal'; and it is in fact man, not his differentia, that is the subject capable of receiving knowledge.

231. 382,22-5. *Dunamis* occurs earlier in Aristotle's text in its active sense of 'power' (1018a30), but Alexander uses it here of the potentiality of a subject to receive contrary perfections. His examples, however, create a difficulty, for a human agent does not have *different* potencies for acquiring the contrary states of virtue and vice, nor is the potency of matter to receive heaviness a different potency than that receptive of lightness (cf. *Metaph.* 10.4, 1055a30: 'the matter is the same for contraries'). Moreover, in the text cited from *On the Heavens*, *dunamis* is not the potentiality to receive the heavy and the light.

232. 382,33-5. This parenthetical remark is a backward reference to Aristotle's fifth type of contrariety. In his first comment on that text, Alexander took *ê* ... *ê* (either ... or) as disjunctive, with a consequent difficulty for his explanation of specific contrariety (see n. 229). But his examples of contrariety by reference (17-33) show that both genus and species can be the basis for the greatest possible difference among contraries.

233. 383,17ff. Jaeger brackets *Metaph.* 1018a38-b8, the lines on which Alexander is now commenting, but as the latter points out, the discussion of 'things other in species' is a natural sequel to Aristotle's earlier treatment of 'contraries in a species'; and Ross retains the text. *Metaph.* 10.8 deals more fully with 'things other in species'.

234. 383,21. This is the Platonic dichotomy, in which 'animal', e.g., is divided into two opposed classes, 'without feet' and 'with feet'.

235. 383,20-4. Such sub-species are subordinate not to each other but to a common species. Thus eagle and hawk are both 'under' bird (cf. 365,22ff.); they differ sufficiently to be called different species but not 'in their substance', i.e. essentially, the case with species of the type next enumerated.

236. 383,26. Cf. the explanation given above, 379,17-20. Inasmuch as they are both natural bodies, water and fire are not contraries; but they have contrary attributes, and these are contained in the definitions that express their respective substance or essence.

237. 383,36. Reading *kata gar auto to tôn* (A and S) for *kata gar to auta tôn* (LF and Hayduck). The same body can be alternately hot and cold because the same potentiality enables it to receive contrary attributes, 'for the matter is the same for contraries' (*Metaph.* 10.4, 1055a30).

238. 384,4, *to gar oikeion hekastôi eidos heteron*. This statement is best regarded as an inadvertent lapse, the result of Alexander's desire to provide an example; for it is obviously incorrect to say that Simon and Socrates differ specifically (cf. 20 below), but that must be the sense if *eidos* means 'species', as it does throughout the whole passage. The text of Aristotle on which Alexander is commenting presents a similar difficulty, for, as Bonitz notes (op. cit.

249), things that are the same in substance and definition differ only as individuals, thus not specifically but numerically. Alexander's explanation might stand if we could take *eidos* either in its occasional sense of 'essence' (for the essence is individuated in Simon and Socrates), or as 'form' (for each man has his own substantial form); but the context argues against either interpretation.

239. 384,5-10. This explanation too is unsatisfactory, for earth and water do not seem to be 'in the same substance', and are certainly not 'in the same definition', as Alexander has just described this type of difference.

240. 384,16. Omitting *oukh*, bracketed by Hayduck after Bonitz and S and clearly incompatible with the sense. The references here and in lines 17-19 are to 383,19 and 22-4 above.

241. 384,23. The text of A is corrupt; the translation adopts Bonitz's conjecture, *t'auton ên an tôi aeri*. Fire is not of course the same thing as air, but it is not essentially contrary to it as is water; see 383,25-8 above and n. 242.

242. 384,24-5. If the subject of *legoito* is *pur*, and if *toutôi* refers to *aer*, *hôs puri*, the reading of L retained by Hayduck, is impossible, for it will mean that fire is the same as air. The translation therefore adopts Hayduck's suggestion, *hôs thermôi*, taking *hôs* as equivalent to *hêi*. The sense then is that even if fire is said to be contrary to air, the difference between the two is not 'in their substance', because heat, the essential quality of fire (cf. 383,27), is presumably an attribute of air as well.

243. 384,31. If a child hears an article of clothing that he has not seen described variously as 'cloak', 'mantle', and 'robe', he thinks that these terms designate different things; but once he has been shown the actual garment, he comes to realize that there is one and the same thing behind this diversity of names.

244. 384,35-6. Reading *to epi tôn epistrephontôn* (LF) for *to tôn epistrephontôn*.

245. 385,3. Ch. 11 of *Metaphysics* 5 has been translated with commentary by John J. Cleary, *Aristotle on the Many Senses of Priority*, Carbondale Illinois 1988. He argues that *genê* in the present text should be understood of the supreme genera or categories, and thinks that Alexander provides some support for this view (33 and 107, n. 3). But *genos* at 1018b10 seems to have its non-technical sense of 'class', and Alexander regards the *genê* simply as five ways (*tropoi*, 386,16) in which the definition of priority (proximity to what is first in a series) is applied. Also questionable is Cleary's interpretation of *arkhê* as 'principle' in the abstract sense. Aristotle's own definition of *arkhê* as *prôton ti* (1018b9; cf. 19) indicates that he is using *arkhê* in the sense of 'what is a beginning', in this case the first thing in a series; and Alexander's examples confirm this sense.

246. 385,6. Reading *topou tinos* (Bonitz) for *toutou tinos*.

247. 384,14. Aristotle says only 'the middle or the last [place]'; the referral of this to parts of the universe is Alexander's interpretation.

248. 385,26-32. For Aristotle, the criterion of priority in time, as in space, is proximity to a fixed point – the present in the case of time. But this position leads to an absurd conclusion: historical events more proximate to the present would be prior to those that preceded them. To avoid this absurdity, he asserts that in reference to *past* events, not proximity to but remoteness from the present is the measure of priority in time. Thus he can maintain that the criterion of temporal priority for both future and past events is the actual or here-and-now present. – The original of Alexander's treatise *On Time* is lost, but fragments have been preserved in a Latin version. These have been translated by R.W. Sharples: 'Alexander of Aphrodisias On Time', *Phronesis* 72, 1982, 58-81.

249. 385,36-8. Since the fixed stars, in contrast to the planets, do not move, Alexander must mean that their *sphere* is prior to that of the other spheres. The term *prôton kinêsan* (*primum movens*) might be a reference to *Metaph.* 12.8, 1073a23-36, but the details here suggest rather the Pythagorean cosmology, according to which the outermost or first moving sphere is that of the fixed stars, after which come the five spheres of the planets (*in Metaph.* 1, 39,1). Cronus (Saturn) is one of the planets (ps.-Alex. *in Metaph.* 12, 700,35), so that *tôn allôn* refers to the planets, not to the fixed stars.

250. 386,2. The neuters *dunatôteron* and *arkhon* reflect Aristotle's text, but Alexander is clearly thinking of men, not things.

251. 386,11. *prôtostatês*, 'standing first', seems to be an error for Aristotle's *parastatês*, 'standing next to' the leader, and hence *second* in line, for the leader is the real *prôtostatês*.

252. 386,19-21. In strict propriety, place, time, etc. are not prior, but are ways in which things are prior. In each case, we make the same assumption: that priority consists in proximity to the beginning of a series, whether this be local or temporal or one of the other types.

253. 387,1. Supplying *prôtera esti tês leiotêtos*: *hê gar euthutês* after *euthutês* (Bonitz, after S).

254. 387,6. This is Alexander's rather awkward paraphrase of Aristotle's 'things that can be without others but without which the others cannot be' (1019a3). *sunanairounta*, an active with overtones of the middle, means literally, 'that destroy [other things] along with themselves', but substance cannot properly be said to destroy either itself or its accidents. What is true is that if substance perishes, its accidents perish along with it (10 below). Thus at *Metaph*. 11.1, 1060a1, an *arkhê* (principle) is defined as *to sunanairoun*, 'that whose destruction implicates [others]'. Alexander's text is cited by J. Stenzl, *Zahl und Gestalt bei Platon und Aristoteles*, 3rd ed., Bad Hamburg 1959, 77.

255. 387,7. Reading *prôtou* for *prôtôi* (Bonitz). On attempts to identify the Platonic source, see Ross, op. cit. 317 and Cleary, op. cit. 111, n. 53. R.A.H. Waterfield cites *Republic* 522 and *Philebus* 55D-E on the priority of arithmetic as a pure science in its own right ('Aristotle, *Met*. 1019a4', *Journal of Hellenic Studies* 107, 1987, 195.

256. 387,33, *kata tauta*. Alexander explains that 'these' refers to the distinction between potentiality and actuality, an interpretation that Bonitz thinks probable. But as Ross points out, not all the meanings of prior and posterior can be reduced to this distinction, so that Aristotle himself seems to have in mind the fourth type of priority, 'whatever things can be without others but without which the others cannot be'.

257. 388,1. On the sense in which 'generation' can be said of accidents, see 25ff. below. But Alexander's reference to *ousiai* (substances) here is misleading, for Aristotle is contrasting not substances and accidents but wholes and parts.

258. 388,6. *kai energeiāi onta* explains *kata genesin prôta*; a better sense would result if *kai* were omitted: 'they are prior in respect to generation *because* they are actually beings'. Although being (*to on*) results from generation or becoming (*genesis*), what has already come into being is 'prior with respect to becoming' because this latter is implicit in the actually existent.

259. 388,11. *huparkhontos* is confusing, because it seems odd to speak of the coming-to-be of what already *is*. But a fetus exists as a whole and is actually prior to the parts that exist only potentially within it because it is still in process of becoming the fully formed and articulated human being who will emerge from the womb. The translation therefore takes *huparkhontos* as describing the not yet entirely complete state of an organic whole that is generated naturally and not by a mere combination of parts (see Ross, op. cit., 318 ad 12).

260. 388,26. i.e., we must add to it *tis* (a kind of) or some other qualifying word to distinguish it from generation in the proper sense.

261. 388,28. This is confusing, for if there is question of *two* accidents, e.g. cold and hot, one of them is potentially prior when the other is actually so, and it is this latter that is potentially posterior. If *husteron* is the correct reading, *to men* ... *to de* perhaps means the *same* accident viewed from different perspectives; thus cold, when it is actually prior, is potentially posterior. This interpretation seems to accord with the sequence.

262. 388,28-30. Assume that the genus is quality, and that the specific contraries between which an oscillating change takes place are cold and hot. We are told that the *terminus ad quem* (hot) of the first change is actually prior, while the *terminus a quo* (cold) is potentially so; and that, when the process is reversed, the new *terminus a quo* (hot) becomes prior, while the new *terminus ad quem* (cold) becomes actually prior. This exposition is intelligible only if we distinguish the chronology of the changes from their teleological explanation. In the first change, the thing changing is actually cold *before* it becomes hot, and actually hot only *after* the change has been completed, so that, in the chronological order, cold is the actually prior and heat the potentially prior. But since heat is the *end* towards which the change is directed, Alexander can say that it rather than cold is the prior actuality because, if this contrary did

not exist as an end, change would not take place; and the same teleological priority obtains when the change is reversed: cold, the new end, is said to be prior in actuality.

263. 388,30. Grammatically, the antecedent of *toutou* would seem to be the preceding *hou*, i.e. the *terminus a quo* of the first change, but as the sequence shows, *toutou* and *touto* are the *terminus ad quem* of the first change (hot), which now becomes the *terminus a quo* of the reverse change.

264. 388,32-3. Alexander returns abruptly to the earlier discussion of priority in relation to a whole and its parts, which has been interrupted by his treatment of the coming-to-be of accidents (25-32). He attempts to link the two topics by reference to reciprocal change, but in the case of accidents this change is the alternating movement between contraries, while in the case of a whole there is no reciprocity, but the generation of the whole is followed by its dissolution into parts, an instance of *phthora* (perishing) rather than *metabolê* (change).

265. 389,1. With a few exceptions that require the more dynamic 'power' (e.g. 390,6 and 391,15), *dunamis* is translated 'capacity' in this chapter to accommodate *adunamia* (incapacity) and other cognate terms that occur. Elsewhere, however, it is given as either 'power' or 'potentiality', terms that better convey Aristotle's distinction between *dunamis poiêtikê* and *pathêtikê*, the *potentia activa* and *passiva* (active and passive potency) of medieval Aristotelianism.

266. 389,19. At *Metaph.* 1019a19, the received text has *hê men oun holôs arkhê metabolês ... legetai dunamis* (capacity therefore means in general the principle of change), the reading accepted by Ross. Jaeger, however, citing Alexander, changes *holôs* to *houtôs* despite the evidence of the present text and 395,6 below.

267. 389,24. 'To be acted on', as *paskhein* is elsewhere translated, better reflects its contrast with *poiein*. But in the present context, *paskhein* is directly linked to *pathê* ('affections' rather than 'attributes'), a connection that should be preserved.

268. 389,35ff. Alexander concludes (390,36) that there are four types of *dunamis*. In Aristotle's text, these would seem to be (1) the active capacity to produce change in another (1019a15-8); (2) the passive capacity to be changed, either (a) in any way or (b) for the better (a19-23); (3) the active capacity to perform actions well (a23-6); (4) the passive capacity, called *hexis*, to resist change (a26-32). But it is impossible to find these same divisions in Alexander's commentary, or to locate precisely his own *third* meaning, that of *hexis*. In the present chapter, Aristotle himself uses this term only in reference to passive states, whereas Alexander applies it to the developed states of an active capacity (i.e. the arts and sciences, 390,15; 391,20), which enable the agent to act effectively and with facility. From a later text (391,18-21) it would seem that he collapses the distinction between Aristotle's 2(b) and 3 (see n. 273), so that his own third type of *dunamis* is *hexis* considered (a) as the capacity to change for the better (at 391,30-2 he specifically identifies this as a *hexis*), and (b) as the capacity of an agent to perform actions in the right way (396,16ff.). These two *active* senses of *dunamis*, both distinct from its passive sense, which in both Aristotle and Alexander is the *fourth* meaning of *dunamis*, have been numbered 3a and 3b in the translation.

269. 390,16. But *dunamis* as *hexis* is the *developed* and *habitual* capacity to perform certain actions *kalôs* (rightly or successfully), in contrast to the primitive capacity simply to do them. Thus there is a natural capacity to express one's thoughts in words, but the act of doing so effectively, with facility and on all occasions, is found only in the trained orator.

270. 390,22-3. Although we would scarcely say that something has a *capacity not to be* affected, we do say that it has the *power to* resist adverse changes, as a healthy body is able to defend itself against infection; see 394,3 below.

271. 390,27. 'Nature too is in the same genus as capacity, for it is a principle of movement, not however in another but in the thing itself *qua* itself' (*Metaph.* 8.4, 1044b8).

272. 390,30-5. Neither explanation is intelligible in terms of Aristotelian psychology. The first suggests the Platonic definition of man as the soul using the body as an instrument. In the second, the soul, rather than being the ultimate principle of human actions that operates *through* its distinct powers, is said to be a passive principle that is, however inexplicably, the seat of active powers in virtue of which man is an agent.

273. 391,18-21. n. 268 cited this text as evidence that Alexander takes *Metaph.* 1019a23, 'again, the capacity to complete an action successfully', as a continuation of 1019a20, despite

the introductory *eti* and the fact that Aristotle's examples at a24 (walking and talking) do not illustrate a thing's changing for the better.

274. 391,22-4. In the first part of this puzzling statement (*ka' kei*), Alexander presumably has in mind *Metaph*. 1019a20-3, but in the second part (*ta gar dunamin ekhonta*) he must, despite the aorist *eipen*, be referring to the text on which he is now commenting (1019b1), for in the earlier text Aristotle does not expand the capacity for change but rather restricts it to change for the better, as Alexander notes at 27 below. His point seems to be that in speaking of the passive capacity to be changed, Aristotle implied the existence, within the same subject, of an active capacity to effect change; *to suneinai autêi* (sc. the passive capacity) *to poiêtikon* implies that *both* capacities exist within the thing that changes, the case of something that is changed by itself *qua* other, as the sick man has within himself not only the passive capacity to be cured, but also, inasmuch as he is a doctor, the power to effect a cure (389,28-34).

275. 391,34. *panta ta esterêmena* (everything that is deprived) is not found in the received text of *Metaph*. 1019b7, which reads *panta tôi ekhein an eiê ti* (everything would be [capable] because it possesses something).

To this point in the text, *hexis* has been used in the second of the two senses distinguished by Aristotle in ch. 20 of Book 5, that of a state or permanent condition (the medieval *habitus*), where *hexis* is derived from *ekhein* intransitive 'to be (in a certain way)'. But when *hexis* is contrasted with *sterêsis*, the privation or lack of something, it has the first of the two senses, that of possessing, where *hexis* is derived from *ekhein* transitive, 'to have, possess' (cf. 397,27 below). 'Having' (gerund) or 'possession' convey this sense, although with the awkward consequence that we must then say either 'to have a possession' or 'to possess a having' (392,4.9.14).

276. 392,21 and 22. Reading *hautôi* for *autôi* (Bonitz).

277. 392,34ff. After giving a general definition of incapacity, Aristotle says, 'Corresponding to each of the two kinds of capacity there is an opposite incapacity, both to that capacity that can impart motion and to the one that can do so in the right way' (1019b19-21). Alexander's commentary on this text is confusing. At first he interprets *hekatera* (each of the two) as referring to *active* and *passive* capacity, and is thus led to distinguish multiple types of incapacity that Aristotle does not mention. But after this exposition, he gives an exact paraphrase of 1019b19-21 in which the two types of capacity conform to Aristotle's explanation of *hekatera* (393,27). Finally, however, he again takes *hekatera* as meaning active and passive capacity (393,32).

278. 393,9. The example of the stone, Alexander's own contribution, is in fact not an instance of privation at all, although he attempts to equate it with Aristotle's example of the eunuch (15 below). To say that inanimate things (stone and wall) are incapable of performing vital actions is to express the mere absence or negation of an attribute completely alien to their nature (thus he explains at 391,35 above), whereas the eunuch, although totally deprived of the power to generate, is a man who should naturally have this power. But on this point see further 418,35ff. below.

279. 393,17-27. There is no evidence in Aristotle's text that he intends, as Alexander asserts, to distinguish three types of capacity corresponding to the three types of passive incapacity; he does not in fact even enumerate three senses of passive *incapacity* as a basis for this opposition. Nor does Alexander himself succeed in identifying three kinds of passive incapacity, for his examples seem to be instances of *active* incapacity, unless he means that acts of learning and seeing involve a *pathos* inasmuch as the cognitive power must be activated by its object. Thus Asclepius: 'The term "capacity" is properly applied ... to things that undergo perfective affections, as in the case of the eyes; for it is by being affected that the eye, distinguishing or comparing, apprehends perceptible objects. But this affection is perfective, for it does not damage the eye, but assists its natural activity' (*in Metaph*. 5, 324,28-34).

280. 393,31. It would seem that anyone who begets offspring has generated 'successfully'. But Alexander may mean that one who begets a male generates more successfully than one whose offspring is female; cf. *GA*, 767b8ff.

281. 393,34. *gar*, not translated, marks an extreme ellipse: '[But we shall not attempt to describe this incapacity], for' etc.

282. 393,36. i.e. as a further reason for not attempting to list all the oppositions.

283. 394,8-11. *dunatos – adunatos* can mean 'capable – incapable', as in the preceding discussion, or 'possible – impossible', the sense to which Aristotle now turns. The dual sense of the Greek terms cannot be expressed by a single word in English.

284. 394,19-20. At *Metaph*. 1019b28, the received text has *to d'enantion toutôi, to dunaton*, 'what is contrary to this (i.e., to the necessarily false), *the* possible', a reading retained by Ross and Kirwan. Alexander, however, omits *to*, and on this authority Bonitz and Jaeger bracket *to* in Aristotle's text, which then reads: 'what is contrary to this is possible'.

285. 394,20. Aristotle has defined the impossible as that whose contrary is necessarily true. The contrary of the impossible, the possible, should therefore be that whose contrary is *not* necessarily true. But Aristotle in fact defines the possible as that whose contrary is *not* necessarily *false*. Alexander suggests that Aristotle is using 'contrary' not in the strict sense of 'contradictory' (not true), but in the more general sense of 'opposite' (not false), as in his final formulation: 'the possible signifies what is not of necessity false' (1019b31).

286. 394,29-31. We might expect Alexander to define contingent being as *meson tou anankaiou einai kai anankaiou mê einai* (intermediate between what necessarily exists and what necessarily *does not* exist), by analogy with his definition of the possible as intermediate between the necessary and the impossible. But the formula he adopts brings out the totally transient and arbitrary character of the existent in question: the fact, e.g., that Socrates is now actually sitting when there is no necessity either that he be in that position or that he not be (cf. *Metaph*. 9.8, 1050b10, 'whatever is capable [of existing] may possibly not exist in actuality'). The minimal quality of such existence seems compromised by Alexander's description of it as *to kuriôs huparkhon*, a phrase more applicable to necessary being; but he intends thereby only to assert the primacy of the actual over the potential, of what *really is* over what *could be*.

287. 394,32. It is difficult to distinguish Aristotle's third sense of *dunaton* from his first, 'that which is not of necessity false'. In explaining that *endekhomenon* means properly *hoion te genesthai* (what can come to be), Alexander may be suggesting that *endekhomenon* differs from *dunaton* (capable), because, unlike the latter, it does not imply a positive power to be or do something (cf. Ross, op. cit. 322 and *Metaph*. 1019b35, 'the senses [of capable] that refer to *dunamis*, power'), but merely signifies the logical possibility that something can be.

288. 395,2, *en gar protasesi ta dunata*, lit. 'for the possibles are in propositions'. This is Alexander's gloss on Aristotle's statement, *tauta men oun dunata ou kata dunamin*, 'these things are not *dunata* by reference to a power'.

289. 395,6. A reference to *Metaph*. 1019a19, on which see n. 266.

290. 395,32. The received text of *Metaphysics* has *hekateron ê hekaston* (either or each). *hekateron ê* is printed by Ross but bracketed by Jaeger, who cites Alexander as evidence that it is a variant reading. But at 396,2 Alexander reads *hekateron ê hekaston*.

291. 396,2-6. Alexander attempts to explain Aristotle's present definition of quantity in light of his treatment of that topic in *Categories* 6. There Aristotle distinguishes quantities consisting of parts that have position in relation to one another from those whose parts have no such position. Time and speech are, as Alexander says, included in the latter group, but *motion* is not mentioned. But time and speech are, according to *Categories*, 'called quantities in the proper sense'; it is such things as whiteness and actions that are said to be quanta only in a derivative sense (*Cat*. 5a39ff.).

292. 396,6-8. A reference to *Cat*. 5a27ff., where the parts of time are said not to have place because they are not permanent. They do however have a certain order, in that one part of time is prior to another, and this same priority is found among numbers (2 is prior to 3, etc.). According to Aristotle, then, it is the order rather than the permanence of parts that is characteristic of numbers.

293. 396,15-17. Considered in its totality, i.e. as an actually infinite magnitude, the infinite is not measurable, hence not a quantity. But if it is thought of as a whole whose parts can be measured (*metrêton*) (cf. *Metaph*. 5.25, 1023b15), the infinite could be in process of being measured (*katametroumenon per partes*), and would thus be a quantity, defined as a magnitude that is being measured. Such at least seems to be the sense of this obscure text, although the explanation given here seems untenable in view of *Phys*. 3.5, 204a22: 'If the

infinite is divisible into parts, any of its parts that is taken will be infinite', so that the assumed parts are no more measurable than the whole.

294. 396,17. Perhaps a reference to *Phys*. 3.5, 204a13, 'the infinite in the sense that we are investigating, that is, as what cannot be traversed', although the crucial term *poson* does not occur in that text. Nor does the fact that the infinite is described as untraversable seem to support Alexander's attempt to include it under the genus quantity, for what is untraversable (*adiexitêton*) is presumably unmeasurable (*ametrêton*) as well, hence not quantified.

295. 396,25. *Phys*. 4.14, 223a24, 'number is either what has been, or what can be counted'. But contrast this statement with an earlier text: 'number has two senses, for we call "number" both that which is counted and that with which we count ... that with which we count is something other than what is counted' (*Phys*. 4.11, 219b6-9). On this point see J. Klein, *Greek Mathematical Thought and the Origin of Algebra*, Boston 1968, ch. 6: 'The Concept of *arithmos*'.

296. 396,27. Cf. *Cat*. 4b26-33: the parts of number, e.g. two fives or seven and three in the case of ten, 'have no common boundary at which they connect, but are always separate'.

297. 396,27-9. To understand this remark and a subsequent one (400,34-7), we must keep in mind Aristotle's statement, quoted in the preceding note, about the ambiguity of number, especially that number is what is counted. If we have a number of items arranged serially, we use number to count them, so that e.g. each pint of milk in a row of ten pints of milk is, when counted, a unit (*monas*), i.e. a discrete and indivisible part of the number ten. But each pint of milk is, independently of its role as a part of the series, a magnitude, i.e. a continuum, and *as such* is divisible into continuous parts. Thus Alexander is pointing out that when the things in a series are counted, they are taken as numbers rather than as magnitudes, and hence are not divided as continua.

298. 396,31. i.e. that a limited plurality is number, a definition that appears in Aristotle's text at this point (1020a13) and that Alexander has given above (24), but omits here.

299. 397,7. Alexander adds this qualification because a line, Aristotle's example of a thing that is a quantity *kat' ousian* (in virtue of its substance, i.e. essentially), is not a substance. But it has in common with substance the fact that it is the subject of the attributes of quantity, and is therefore closer to substance than these attributes; cf. 24 below.

300. 397,9. On *hexeis* as 'possessions' rather than 'states', see 27 below and n. 307.

301. 397,10. Reading *toutesti* for *ta de* (Bonitz after S). *ta de* implies a distinction between the attributes of substance and those of quantity *qua* quantity, but this distinction is not found in Aristotle's text, nor is it operative in Alexander's subsequent commentary.

302. 397,11. *to polu kai to oligon*, lit. 'much and little', terms which in Aristotle's text (1020a20) are applied to extended quantity, not to numbers, as in Alexander's example.

303. 397,15. That such attributes are not quantities 'in themselves' contradicts Aristotle, 1020a19, and what Alexander himself has said above. But clearly they are not *per se quanta* 'in the primary sense', as are the subjects in which they inhere, which are such 'in virtue of their substance'.

304. 397,21. Jaeger follows Christ in bracketing *kai baru kai kouphon* (and heavy and light) at *Metaph*. 1020a22, but Alexander's commentary here and at 400,21 below shows clearly that the words appeared in his text.

305. 397,23-4. One clump of earth is heavier than another, hence quantitatively different, because the natural inclination to move downwards that each one has is greater in the first. But earth and fire are heavy and light respectively, hence qualitatively different, because the natural inclination in one is to move downwards, that in the other is to move upwards.

306. 397,26. 'These things' are number, line, plane, and solid, of which many and few, long and short, etc., are attributes. The reference is to *Metaph*. 5.8, 1017b17ff.

307. 397,26-8. On *hexis* as 'state' or 'having, possession' see n. 275. This text makes it clear that Alexander is now taking the term in the latter sense. Apostle thinks Aristotle intends to distinguish *hexeis* from *pathê* (op. cit. 309, n. 7), but in Alexander's view, to say that the long and short are attributes of line differs only verbally from saying that the line possesses length or shortness.

308. 397,33. But the statement in *Categories* seems so definitive that Bonitz thinks the two texts cannot be reconciled: 'Nothing is called great or small in itself, but only in reference

to another' (5b16); nor does Alexander explain how something can be called 'great' without qualification. Apostle suggests that the universe is great because there is no greater magnitude (op. cit. 308, n. 9), and perhaps such terms as 'huge, vast, enormous' would illustrate Alexander's point.

309. 398,6-11. It is completely incidental (*teleon kata sumbebêkos*, 16) to a magnitude that it should be of a certain colour, still more that an attribute such as 'musical' should be predicated of it. But divisibility is a property of magnitudes, and because motion and time are quantities by reference to this property, they are less accidentally attributes of magnitude than white or musical.

310. 398,26. Alexander is paraphrasing *Metaph*. 1020a32, *kai hê kinêsis posê, ho de khronos tôi tautên* (movement too is a quantity and time because *this* is), where *tautên* refers directly to *kinêsis*. But he takes *tautên* as a reference to *kinêsis* in the definition of time at *Phys*. 4.11, 219b1, 'time is a number of movement in respect to before and after.' On this definition see J. Annas, 'Aristotle, Number and Time', *Philosophical Quarterly* 25, 1975, 97-113.

311. 398,28. More precisely, that it is continuous rather than discrete, *Cat*. 4b25, 5a9.

312. 398,34. i.e. as magnitudes are. Alexander states the conclusion in reference to affections of quantity in general, although we would expect, 'movement too, as an affection of what is quantity in itself, would be this kind of quantity'.

313. 398,34-6. This explanation begins with the perverse assumption that movement and time *are* quantities in themselves although Aristotle *calls* them accidental. But he does not mean, Alexander continues, that they are accidents such as musical and white, which of themselves do not imply quantity and whose relation to magnitude is purely incidental (cf. 9-11 above and n. 309).

314. 398,36-9. This second, and certainly more plausible, explanation contrasts movement and time with such affections as long and short, etc. (*Metaph*. 1020a20), which are *per se* quantities as essential predicates of the quantities to which they belong (397,10-14). These affections are constant and intrinsic concomitants of their magnitudes, whereas movement is a transient affection extraneous to body, and time is related to body only through movement.

315. 399,4-6. By the *diaphora tês ousias* (differentia of substance) or *kat'ousian* (in respect to substance, 1020b1), Aristotle means the *differentia specifica*, that differentia which determines a thing's essence. This is quality *proprie dicta*, substantial or essential quality (but on this terminology see Kirwan, op. cit. 162-3). But since Aristotle's examples (biped and quadruped as differentiae of animal) do not signify *what* man or horse are, but only a particular qualification that describes them (*Top*. 4.2, 122b17), Alexander thinks it necessary to distinguish differentiae of this kind (*to poion ti*) from the differentia of substance, which is quality (*poiotês*) in the primary and most fundamental sense (1020b14). Differentiae of the lesser sort, as mere accidents of the thing (cf. *Cat*. 3b19, ' "white" signifies nothing except a qualification, *poion*'), are in the category of quality, hence are not predicated essentially, but the differentia of substance is 'in substance', i.e. in the category of substance: cf. 400,29 below, 'he calls the differentia of substance "primary" quality because substance is the first genus, so that its *per se* attributes are prior to the other attributes.'

This last point, however, presents a problem: 'Aristotle himself is uncertain whether the specific difference should be referred to the category of quality, or to that of substance' (Bonitz, op. cit. 258). *Metaph*. 7.12, 1038a19 suggests the latter: 'the last differentia is the substance of the thing'; but *Top*. 4.2, 122b17 seems an even stronger affirmation of the former: 'no differentia signifies what a thing is, but rather some qualification (*poion ti*), as do "pedestrian" and "biped".' For Alexander, however, even this text confirms the view that the specific differentia is substance: 'he adds the word "rather" because the differentia is not simply a qualification (*poion*); for the differentia in substance does determine quality (*to poion*) in reference to substance, but it is not a qualification but a substance' (*in Top*. 4, 314,21).

316. 399,10-13. This is badly stated because of the compressed expression *en tôi ti esti katêgorointo*. It is *genus* and *species* that are included in the definition expressing the essence (*to ti estin*), and hence are predicated essentially (*en tôi ti esti katêgoreitai*) of the thing defined, as 'animal' and 'rational' of man.

317. 399,11-12, *ho en ... katêgoreitai*. Hayduck puts the interrogation point after *periekhetai*, and his text continues: *ê hê diaphora*. But *ê* suggests an explanation of the difficulty that makes no sense in context, so that the translation adopts Bonitz's conjecture, *ei hê diaphora*, and extends the question through *katêgoreitai*. Thus Alexander's problem is: if genus and species signify only what kind of thing a certain substance is, as the text from *Categories* seems to say (3b21, *poian gar tina ousian sêmainei*), not what it is, they cannot be predicated essentially, as they *must* be if they constitute the essence.

318. 399,15-16. On *huparxis* see n. 161. At 359,37 Alexander uses *ousia* and *huparxis* as synonyms meaning *phusis* (nature). This latter term is not in fact among the meanings of *ousia* in ch. 8 of Book 5, but *ousia* is given as one of the meanings of *phusis* in ch. 4 (1014b35).

319. 399,18-20. Geometrical figures are not substances, but Aristotle mentions the differentia of circle as an instance of the first meaning of quality. This apparent discrepancy leads Alexander to speculate that in defining quality as 'the differentia of substance', Aristotle means not only qualities in the category of substance, but those in the other categories as well. Later, however, he gives a different explanation (400,8): Aristotle mentions circle here only to provide an example of a differentia ('without angles'), so that the qualities in question *are* those of substance in the proper sense. This second explanation seems correct, for as Aristotle does not hesitate to *call* mathematical objects 'substance' (401,2), so he can use them as examples of the determination of a genus by its differentiae. From this point of view, 'without angles', although a quality in the category of accident, is no less a specific differentia with respect to circle than 'rational' with respect to man.

320. 399,23-5. Four, e.g., is simply a number if it is considered as a unit smaller than six. But if it is considered as composed of two factors (2+2), it is no longer one-dimensional but is analogous to a magnitude of two dimensions.

321. 399,31. This last example is inadvertent, for it illustrates a number of *three* factors, as he goes on to explain.

322. 399,32-3. Alexander is explaining Aristotle's *posakis posakis posoi*, lit. 'so many times so many times so many'. His first example is awkward, because four and eight respectively can be considered numbers with two factors. But inasmuch as eight is the product of two doubled once and then doubled again, it can be said to have three factors.

323. 400,8-11. See n. 319.

324. 400,15-17. Here *diaphorai* has the non-technical sense of 'differences', accidental qualities or attributes that are neither specific differentiae nor properties. Aristotle mentions hot and cold, black and white, the contrary attributes that things assume in the process of being altered. On heavy and light, see n. 305.

325. 400,30. *ta huparkhonta têi ousiāi* is ambivalent. The specific differentiae are not, strictly speaking, 'attributes' of substance, but they 'belong to substance in itself' as being part of the essence.

326. 400,34-7. The text that prompts this remark is 1020b14-17: 'the quality in numbers is also part of the primary quality, the differentia of substances, but either of those that do not move or not of them *qua* moving.' But, it might be objected, we certainly speak of *a number* of moving substances, e.g. the planets, and *count* them, and what is counted is a number (see n. 297), so that it would seem that moving substances too will possess the differentiae of number. This is true, Alexander says, but only with the proviso that they have these differentiae not because they are in motion, but because they are numbers.

327. 401,1-2. This conclusion goes counter to Aristotle's distinction between the differentiae of immobile, i.e. mathematical, substances, and the accidental physical attributes of bodies in motion, a distinction that Alexander himself has explained clearly (400,15-20 and n. 324).

328. 401,3-6. There is nothing in Aristotle's text to support this strange suggestion; indeed, in the immediate sequence to the statement quoted in n. 326, he specifically mentions 'the differentiae of movements' as belonging to the second type of quality (1020b18).

329. 401,24. Because Aristotle says that good and evil are qualities *especially* in the case of living things, Alexander suggests that they are not necessarily qualities, but can occur in other categories as well. But Aristotle probably means that although even inanimate things can be called 'good' or 'bad' analogically, inasmuch as they move in the right or wrong way

(cf. Alexander's explanation at 20 above), these terms properly designate qualities of living things, those especially which consciously direct their movements towards an end.

330. 401,30-2. This is the second type of quality named in *Categories*, although the term *epitêdeiotês* (fitness) does not occur in Aristotle's text. He defines this type as 'the natural capacity ... to do something easily or to be unaffected' (9a19). His example of the former is the innate ability of certain people to perform as athletes, of the latter, the power of the body to resist disease. Thus by *epitêdeiotês te kai dunamis* (30) Alexander apparently means a capacity that renders its subject fit to function in a special way. If such a capacity can be classed with the differentiae of movement, as he suggests, it would be because suitable bodily movements result from it, and inept responses from the corresponding incapacity.

331. 401,34-8. This conclusion summarises Alexander's attempt to reconcile the present treatment of quality with Aristotle's more detailed exposition in ch. 8 of *Categories*. The possibility of such a reconciliation seems remote, because in the *Categories* quality, as a genus of accident, is contrasted with substance, whereas here the first meaning of quality, the one that Aristotle calls most proper (1020b14), is 'the differentia of substance', i.e. the specific difference. But Alexander suggests that the four types of quality listed in *Categories* – states, capacities, passive qualities, and figures – can all be subsumed under the second meaning of quality found in *Metaphysics*, the affections of substances in motion. He himself questions whether capacities can be equated with these affections, but fails to note that passive qualities pose an even greater difficulty. As these are described in *Categories*, they are affections not of the things that possess them, but qualities that produce sensuous *pathê* in other things; thus honey is said to be sweet not because it is affected, but because it affects the sense of taste (9a36-b8); so that passive qualities seem to have no relation to substances in motion. The critical case, however, is that of figures, for 'equilateral' is not merely a *pathos* or accident of triangle, but the specific difference that determines its essence or substance. Hence this kind of quality from *Categories*, as Alexander somewhat reluctantly admits, belongs to the first meaning of quality given in *Metaphysics*, and the conclusion stated in the *hôste*-clause cannot be accepted.

332. 402,8-13. On this third class of relatives, see note 365. *to kritikon* is a reference to *DA* 3.9, 432a15, where Aristotle describes the first of the two powers that determine the soul of animals as 'the power of discriminating, which is the work of thought and sense perception'. In his own *De Anima*, Alexander expands the statement: 'The two discriminatory powers of the irrational soul are sense perception and imagination; for the rational and cognitive power, which is also discriminatory, is proper to men' (73,14-16). The term *kritêrion* occurs in Aristotle only in conjunction with *aisthêterion*, the sense organ (*Metaph*. 11.6, 1063a2), but in his commentary on the *De Sensu*, Alexander calls the acts of thinking and perceiving 'two *kritêria* which nature has given us to enable us to know the things that exist' (111,25-6).

333. 402,16ff. Alexander's lengthy commentary on *Metaph*. 1020b32-1021a8 is difficult to follow. To provide some orientation for the reader, portions of Aristotle's text have been prefixed to relevant sections of the commentary. The passage from Aristotle is translated and analysed by Heath, *Mathematics in Aristotle*, Oxford 1949, 209-11.

The present text (1020b32-3) reads *pros autous ê pros hen*. It is not clear whether *autous* refers to numbers (Ross and Heath) or to the subject of the sentence, 'relatives' (Apostle and Kirwan). The latter seems to be Alexander's interpretation (*pros allêla*, 19, *pros allêlous*, 21,22).

334. 402,18-22. Before taking up Aristotle's examples, Alexander summarises what he thinks to be the three kinds of numerical relatives, but his enumeration does not correspond to the order of the examples. [i] seems to describe the relation of totally indefinite excess that Aristotle introduces as a kind of afterthought (1021a3-8); [ii] is the relation of double to half, with which Alexander pairs that of the half again as much to its correlative (403,1ff.); [iii] is the relation of the many times as great and fractionally greater to their correlatives.

335. 402,23. The examples present a problem in terminology. In their masculine form, the adjectives that Aristotle employs suppose the substantive *arithmos* (number): thus *diplasios*, *pollaplasios*, *hêmiolios* and *epimorios* are, respectively, a number that is two, or many, or one-and-a-half, or one-and-a-fraction times greater than the inverse or correlative number. But these adjectives actually appear preceded by the definite article *to*, thus suggesting that

Aristotle has in mind the concrete *thing* or *quantity* that is two or however many times larger than some other thing or quantity (cf. 404,24ff. below, where Alexander seems to mark the difference between number and quantity). These terms have therefore been translated literally despite the occasionally clumsy form of expression that results.

336. 402,24, *ekhon tên antithesin*. The *antithesis*, lit. 'opposition', between the two terms in a relation contrasts them indeed, but in such a way as to show their *correspondence*, as the term is hereafter translated except in the case of relatives that are such *kata dunamin* (in virtue of a capacity), for *poiein* and *paskhein* represent a genuine opposition. Alexander in fact equates *antithesis* with *skhesis* 'relation' (405,7.14). In the same way, the terms are said *antikeisthai pros allêla*, 'to correspond to each other', but see 405,20 below, where *antikeimena* has a double sense.

337. 402,24-6. That is, the relation is that of two to one, where 'one' is always a definite number relative to the double, although the exact numerical values of double and half are variable, as four, e.g., is to two or ten to five.

338. 402,31-2. This seems to contradict the explanation that follows, since the excess is the indefinite 'many times greater' rather than the definite excess of twice as much or of some other fixed ratio. But since the *pollaplasion* is a multiple that exceeds its submultiple, the *pollostêmorion*, by just as many times as the latter is exceeded, this excess, unlike that of the *huperekhomenon*, which simply exceeds, can be called 'definite', and can be expressed by different whole numbers, e.g. nine and three or twelve and four.

339. 402,32-3. A paraphrase of 1020b34-6, *to de pollaplasion kat' arithmon pros hen, oukh hôrismenon de, hoion tonde ê tonde*. The final words, as Ross points out, show that *hôrismenon* goes with the preceding *arithmon*, not with *hen*; but Alexander takes the latter sense, and is therefore led to speak of an 'indefinite one', that is of a thing whose excess or defect is measured differently in each case.

340. 402,39-40. i.e. the numerical value of the two terms in the relation is not determined according to a fixed ratio such as two to one, but according to the variable ratio that exists between them.

341. 403,13-20. The point of all this is simply that although Aristotle's second example, that of the many times as great, comes between his first and third examples, those of the double and the half again as much, the latter two do not illustrate a different kind of numerical relation.

342. 403,22. 'The *epimorios* (*superparticularis*) number is ... the whole *plus* some submultiple of it ... Nicomachus defines *epimorios* as being the number "which contains in itself the whole with which it is compared and some one part (i.e. aliquot part) of it" ' (Heath, op. cit. 210).

343. 404,3. At *Metaph.* 1021a5, our text reads: 'for number is commensurable, *kata mê summetrou de arithmos ou legetai*, but number is not predicated of what is incommensurable.' Alexander, however, had a quite different reading: *kata mê summetron de arithmon legetai*, 'but [that which exceeds is related to what it exceeds] by an incommensurable number'. This statement, Ross says, 'could be explained only by supposing that Aristotle admits some wider sense of number in which it is not limited to integers; and there is no evidence that he did this' (op. cit. 329), a judgement with which Heath concurs. The passage in which Alexander attempts to explain the vulgate reading (404,4-31) does not succeed in making the text intelligible.

344. 404,11. The translation and meaning of this dense sentence are made difficult by the fact that it ends in an anacoluthon: *mê hoti eisi* (9) ... *hotan mê horizôsin* (10). The sense seems to be that when two numbers are compared or contrasted (*lêphthentes pros allêlous*) and reveal the fact that one of them exceeds the other by an indefinite amount (*houtôs ekhein*), they are not for this reason incommensurable; but since the comparison does not succeed in 'limiting the excess', i.e. in making it a definite amount that could be represented by a commensurable number, their relation can be expressed only by an incommensurable number. This conclusion is not stated formally, but the whole point of the sentence is to show how the indefinite, and therefore incommensurable, can be expressed numerically.

345. 404,16-18. R.W. Sharples, to whom I am indebted for very helpful comments on this passage, remarks at this point: 'I take it the suggestion is that one compares A and B and

finds that after one has subtracted an amount equal to B from the difference between them one is left with exactly the same amount again, so that A–B = 2B, i.e. A = 3xB.' He also points out that here and at 27-30 below, Alexander may have in mind *anthuphairesis*, a technique for dealing with ratios by repeated subtraction; see C. Mugler, *Dictionnaire historique de la terminologie géometrique des grecs*, Paris 1958, 61; A. Szabó, *The Beginnings of Greek Mathematics*, Dordrecht/Boston 1978, 136; and especially D.H. Fowler, 'Anthyphairetic Ratio Theory', *The Mathematics of Plato's Academy: a new reconstruction*, Oxford 1987, 31ff. Alexander knew the technique, for in his commentary on the *Topics* he gives *anthuphairesis* as the equivalent of Aristotle's *antanairesis* (158b34), and explains how the process works (*in Top.* 8, 545,15-21); this text is translated with commentary in Fowler, op. cit. 32.

346. 404,18, *holôs aoriston*. In Aristotle's text, this seems clearly to mean, 'totally indefinite', but Alexander takes the adverb in the sense of 'in general', an interpretation less damaging to his attempt to explain how number, although commensurable, can be predicated of the incommensurable.

347. 404,20-1. The text is corrupt from *hou deiktikon* to *summetron*, and nothing can be made of the Greek printed by Hayduck. To supply the lacuna the translation adopts the Latin version of S, although this does not offer much enlightenment.

348. 404,21-3. This explanation concludes, therefore, with the implication that there *are* incommensurable numbers, a possibility that Alexander seems to have ruled out at 3 above. But perhaps the point is that definite numbers are integers, and that Alexander, unlike Aristotle, admits the possibility of numbers that are not measured by the unit, as his remark about the *epimorios* (25) seems to indicate.

349. 404,23-6. Alexander now offers a second interpretation, one that involves a distinction between an excessive number (*ho men ... huperekhôn arithmos*, 24) and a thing that exceeds (*epi de tou huperekhontos*, 25). It was suggested in n. 335 that by the latter he means a *quantity* in contrast to the *number* by which a relation is expressed, and the present text seems to confirm that explanation. For the fraction by which one number exceeds another can be determined exactly, but the 'something more' by which a thing or quantity exceeds remains indefinite and cannot be expressed numerically – such at least is the implied conclusion.

350. 404,28-9. Alexander gives the double as an example of Aristotle's 'so much and something more' where the 'something more' is equal to the exceeded; thus if A is twice B, A exceeds B by an amount equal to B. But since the relation of the double to its correlative is in the fixed ratio of two to one, this is not a case of chance parity such as Aristotle is describing, where the 'something more' is of itself indefinite, and merely happens to be, by accident, equal to its correlative.

351. 405,4, *kata to hen legetai*. Relatives of the kind now described do not in fact seem to belong among the 'numerical relatives', because the 'one' that is the basis for their comparison does not refer to numbers, but signifies the one aspect in respect to which things alike or equal are related; thus Ross translates, 'for [they] all refer to unity', and Alexander later uses the abstract *henotês* to express this idea. To defend his classification, Aristotle remarks that one, the unit that is not itself a number, is 'the beginning and measure of number' (1021a12-13); cf. Klein, op. cit., 53. But *this* one is not the source of the oneness of things alike or equal, a point that Alexander finally concedes (15-19 below).

352. 405,5. That is, *pairs* of things that are like or equal or the same are called one because the two things are compared to each other in respect to some one aspect belonging to each of them.

353. 405,6-8, *hoti ... skhesis*. The uncertain grammar makes this clause suspect. It can be construed only if we understand *hôste* before *hen einai*, and supply *esti* or *gignetai* after *hê antithesis kai skhesis*. To avoid a mere pleonasm, *toiautê* must then mean, 'a relation that is numerical'; cf. 14-15 below.

354. 405,9-10. The case of self-identity is not of course what Aristotle has in mind here, for by 'things whose substance is one' he means two or more things that have the same essence, so that they can be called 'same' in reference to this one aspect.

355. 405,11-12. The actual statement is somewhat different: 'things are called like or

unlike only in reference to qualities, for one thing is like another only inasmuch as it is qualified in a certain way' (11a16).

356. 405,22. To this point in the treatment of relatives, the ubiquitous *kata* has meant 'by reference to' or 'with respect to'. But agent and patient are relative not only by reference to, but in virtue of, their capacities: as Aristotle says, *hoti dunatai, because* they are capable of acting or being acted on. In this context, therefore, *kata* is translated in its causal sense.

357. 405,23. Throughout this passage, *energeia* and its plural are difficult to translate because there is no single English word that conveys the dual sense of the Greek term. In Aristotle's example, heating or cutting is the *act* or *actuation* (*energeia* in its technical sense as the opposite of *dunamis*, potentiality) of the active capacity of the agent; but it is also an *action* or *activity* that produces a corresponding *pathos* in the patient. This *pathos*, being heated or cut, is likewise an actuation of the passive capacity of the patient to be so affected, but it is *not* an action or activity, as Alexander points out at 31 below. Thus when Aristotle says, 'things are active and passive in virtue of a capacity and the *energeiai* of their capacities' (1021a14), 'actuations' is an adequate translation; but when he says, '*energeiai* that involve motion do not belong to numerical relations' (a20), the term suggests action as well a actuation, an implication that Alexander makes explicit in quoting this statement (26-7). The ambiguity is obvious at 1021a19, 'numerical relations do not have *energeiai*', where Aristotle means 'actuations, being actualised', as he goes on to explain. But Alexander's reference to the immobility of numbers shows that *he* understands *energeiai* as 'activities'.

358. 405,23-5. This dichotomy misstates the case, for relatives exist only *as* relatives: there is nothing that is actually heating unless there exists along with it something capable of being heated.

359. 405,30. Reading *energeia men* for *energeia hê* (Bonitz). According to this explanation, numbers are actuated by the activity of the intellect, hence are actuations but not actions. The source for this may be *Metaph*. 9.9, 1051a29, where, speaking of geometrical theorems, Aristotle says: 'it is evident that things existing potentially are discovered by being brought to actuality (*eis energeian*); the reason is that thought is an actuality (*energeia*).'

360. 405,32-406,3. As Alexander first explains the theory, the requisite proportion is between agent and patient, but in his example it seems to be a balance within the agent. At all events, the theory, although it offers an ingenious explanation of how numbers, represented by numerical proportions in bodies that act, can have *energeiai* (here in the sense of activities), is unacceptable because the actions of bodies involve motion, and numbers, Aristotle has said, can have no actuation of that sort.

361. 406,10-11. Alexander has difficulty with Aristotle's statement that relatives whose relation depends on a past action are related 'in virtue of a capacity', presumably because the capacities of both agent and patient have now been actuated. He offers two explanations. To make even minimal sense of the first, we must take *kata dunamin* (10) as adverbial (= 'potentially') and supply something to explain *energounta*. Then the explanation seems to be that the relation of, e.g., a mature son to his father has receded, as it were, to a potential, i.e. non-actual, status because the father is no longer generating him. Both sense and syntax would be vastly improved if we could read *ei kai* for *hoti* and *energoumena* for *energounta*: 'he says that even things that have already come into being [are relative] in virtue of a capacity, although they are no longer regarded as [in the process of] being actualized.'

362. 406,11-13. According to this second explanation, the relation of agent and patient is permament: once having generated a man is forever a father, and a work of art continues to be dependent on its creator although the latter no longer exists. But does the explanation apply to actions such as heating, which produces no permanent effect?

363. 406,14-20. On the sense in which privation can be called a capacity, see *Metaph*. 5.12, 1019b4-10, and Alexander's commentary, 391,31ff.

364. 406,24-5, *hoper estin allou legesthai*, that is, its very nature or essence consists in its being referred to another; cf. *Cat*. 6a36-7, 'we call relative all such things as *hoper estin heterôn einai legetai*, are said to be just what they are, *of* or *than* other things' (Ackrill). (Greek uses the genitive to say either that the double is double *of* the half, or that one thing is larger *than* another.) The point of Aristotle's statement is that relations of the first two types are reciprocal or symmetrical: an agent, e.g., is called relative because it 'is said to be *of* the

patient', i.e. is referred to it, and the same is true of the patient. But, he continues, relations of the third type, those involving perception or knowledge and their objects, are not of this sort: the thing perceived or known is relative because something else is referred to it.

365. 406,27-9. i.e. at 1020b30, where relatives of this type were introduced. There Aristotle mentioned first 'the measurable and measure' (an obvious reference to Protagoras' dictum, 'Man is the measure'), then 'the knowable and knowledge, the perceptible and perception', as here he first names 'the measurable', then 'the knowable and the thinkable'. From this point of view, then, *measure* is the genus of which knowledge and perception are species. Alexander, however, makes *to krinon*, that which discriminates, the genus, under which he subsumes measure itself, perception, knowledge, thought, opinion, judgement and later *nous*, intuition, as the quasi-species. But this expanded list of psychological activities serves no purpose in the present discussion, which is concerned with the relation between *any* act of apprehension and its object.

366. 406,30. *ekeinou* is not in Aristotle's text, but is the word that Alexander substitutes for *allou* (of something else); the latter word appears at 25 above where he quotes 1021a28 directly, but here he is paraphrasing. The point of the parenthetical remark is that reciprocal relations can be expressed in other ways than by the genitive case, so that the difference between relations of the first two types and the type now being discussed is not a question of grammar; as Aristotle says in the *Categories*, a difference in case ending is *kata lexin*, merely verbal (6b33).

367. 406,32. And thus, although being expressed by the dative case, they are relatives of the same type as numericals of the primary sort (double, etc.), which are expressed by the genitive.

368. 407,1-4. A paraphrase and expansion of 10212a31: *to dianoêton sêmainei hoti estin autou dianoia*, 'that which is thinkable signifies that there is thought of it'. Ross however translates, 'that the thought of it *is possible*' (italics added); for to say that the thinkable exists because there is thought seems to compromise Aristotle's fundamental position as a realist that being is prior to knowlege and determines it: *Metaph.* 10.1, 1051b31, 'we call knowledge and perception the measure of things ..., although rather than measuring they are measured'; and 10.6, 1057a7, 'knowledge would seem to be the measure and the knowable what is measured, but ... in a sense it is knowledge that is measured by the knowable'. Even more decisive is his statement in the *Categories* that the knowable and perceptible can exist even if knowledge and perception did not, whereas the destruction of the former entails the destruction of the latter (7b23-8a3), because 'we acquire knowlege from things already actually existing' (b25). In the present discussion this metaphysical position, although implied, is not clearly stated. When Aristotle says, 'the measurable and the knowable and the thinkable are called 'relatives' because something else is said to be [just what it is] by reference to them', he means that the nature of one of the relatives, knowledge, consists in its being referred to the other, the knowable; what is only implied is that the knowable is not equally dependent on knowledge. Alexander makes this point explicit: while asserting bluntly that things are perceptible or knowable because perception and thought exist, he insists that their nature *as relatives* is not determined by their being *of* perception and thought, however much this position might seem to be a merely verbal attempt to resolve the problem (see n. 371). He is of course completely orthodox on the priority of being over knowledge: see, e.g., 414,13, 'as the thing is, so the knowledge of it comes to be'.

369. 407,4. *gar* (for) marks an extreme ellipse: 'It should not be objected that relatives of the other type are expressed in the same way, for' etc.

370. 407,7-8. The point is that, although the relation of two things that are alike is symmetrical (if A is like B, B is like A), the nature of A as a relative does not depend on B's being referred to it, whereas (the argument continues) this is not the case of the perceptible in relation to perception.

371. 407,10-11. This statement, as well as the further explanation of *ta krinomena* at 26-9 below, reveals the awkward position in which Alexander finds himself. Although the perceptible *legetai pros tên aisthêsin*, is *referred to* perception (for, as he says later, it is the nature of every relative to be referred to something else), *ou legetai tês aisthêseôs einai*, it is not said to be *of* perception. What then is the basis for its being so referred? The fact, we are told

repeatedly, that perception is *of it*; but it will soon become clear that this means that it is the *object of* perception. In his one attempt to deal with this dilemma, Alexander says only that the perceptible is related to perception 'in some way or other'; see 409,32 and n. 388.

372. 407,13-15. The analogy is a strange one, for a relation requires two distinct terms, and the congruence of properly fitted parts is not distinct from the parts as knowledge is distinct from its objects. *harmonia*, in fact, is *in* these parts, as Alexander later explains (408,11ff.).

373. 407,16, [*ou*] *pros touto hou esti dianoia*. The bracketed portion of the translation attempts to show an ambiguity in these words that would be obvious to a Greek reader. In what would seem to be their natural interpretation, *hou*, like its antecedent *touto*, is neuter, and is an objective genitive, so that the meaning is 'thought is not relative to its *object*'. But Alexander takes *hou* as masculine and possessive: 'thought is not relative to the one whose thought it is' or, 'to whom it *belongs*'; and he devotes nearly two pages to his attempt to explain this interpretation. The more natural interpretation, however – that sc. thought is not relative to the thing known – raises a problem with which Alexander does not have to deal: how is it possible that thought is not relative to its object? Aristotle suggests the answer to this question by his subsequent remark about sight and its object. (Significantly, although Alexander later quotes the full text, he never comments specifically on the key words, 'sight is relative to colour or something of that sort'.) In the terminology of the scholastics, any natural thing, considered simply as what it is, is the *material* object of perception or thought as being *that which* is perceived or known (thus Aristotle concedes that it is obviously true to say that sight is of the thing seen); but it is the *formal* object of these acts only under those aspects which specify the soul's faculties of apprehension: the so-called 'proper sensibles' such as colour, sound, etc. in the case of perception, the form in the case of intellectual knowledge.

374. 407,19. Reading *ou dunamenou* for *dunamenou*; Hayduck prints the latter, although suggesting in his apparatus that the former is the natural reading. *dunamenou*, in fact, subverts the whole preceding argument, which was intended to prove that the relation between *to krinon* and *to krinomenon* is not reciprocal, as it would be if the latter can be referred to the former in the same way as the former is referred to it.

375. 407,22, *pros ha tôn estin*, lit. 'by reference to the things of which they are', which better illustrates the ambiguity of the Greek genitive in expressing relations. But 'objects' is clearer and more intelligible in English, and the phrase will hereafter be translated in this way.

376. 407,24, *to ekhon*. This vague neuter might signify the cognitive power or faculty itself, but since Alexander later shifts to the masculine *ho ekhôn* (29 below and 409,11.12), *to ekhon* more probably designates the knower.

377. 407,26-7. This impacted sentence becomes more intelligible if the antecedents of *toutôn* and *auta*, and the unexpressed subject of *legetai*, are made explicit: 'because perception and knowledge, to which relatives of this kind, i.e. perceptible and knowable things, are referred, are *of* those perceptible and knowable objects, which are referred to perception and knowledge.' Alexander invokes the explanation given at 10-11 above: the objects of discriminatory powers are indeed referred to these powers, but they are not *of* them – the latter are *of them* (n. 371).

378. 408,1. i.e. we will not be guilty of the tautology that Aristotle criticises; cf. 7 below and 409,6.

379. 408,2, *ti estin hou estin epistêmê*. A paradox: Alexander seems to think it obvious that *hou* in this question is neuter and objective, although he assumes that the same *hou* in Aristotle's *hou esti dianoia* was masculine and possessive, an assumption, we are told here, that leads to an absurd conclusion.

380. 408,7. But is the supposed tautology, 'knowledge belongs to the one who has it', more objectionable than the answer that Alexander has called *eulogos*, 'knowledge is of things that are knowable', i.e. of its object?

381. 408,18. On the *Topics* of Theophrastus see J. Bochenski, *La logique de Théophraste*, Fribourg, Sz 1947, 36-7. Graeser gives the present text as F45 in his edition of the fragments, and adds a brief commentary (*Die logischen Fragmente des Theophrast*, Berlin/NY 1973, 40

and 111); Alexander's earlier reference to this work of Theophrastus (381,13) is F42 in Graeser.

382. 409,14-18. If Aristotle's position must be justified, it is because Alexander's interpretation of *Metaph.* 1021a32 – that sc. thought is not referred to the thinker in whom it exists but to the thing cognised – seems to conflict with the text from *Topics* he has quoted, according to which relatives *are* referred to that in which they exist. But that text provides for relatives such as knowledge that are not necessarily referred to things in which they exist (although such reference is possible), but that can also exist in other things. When therefore (Alexander argues) Aristotle refers thought not to the knower but to the object, he is invoking this principle.

383. 409,18-25. The suggestion that the relation between agent and patient might be analogous to that between a discriminatory power and its object is simply inexplicable in view of what has preceded, for relatives of the former type are reciprocal; as Alexander has said, 'each of the two correspondents is said to be just what it is of that to which it corresponds' (406,30), a description clearly incompatible with his present statement, 'the agent is of the patient, but not *vice versa*'. Significantly too, his examples of the agent-patient relationship imply that the capacity which is the basis of the relation exists only in the agent, although he has previously stated clearly that to the active capacity in the agent there corresponds a passive capacity in the patient which must be actualized if an action is to take place: 'in things whose actuation comes through motion, there is an actuation of the patient, and not only of the agent' (405,31).

384. 409,23-5. As a logical consequence of his hypothesis Alexander equates the physical action of burning and the psychological action of perceiving, although, as Aquinas points out, the two differ radically: 'seeing and knowing and actions of this kind remain in the agent and do not pass over to the things affected' (op. cit., Cathala, 1027), whereas burning and similar transient actions terminate in their objects and change them in some way.

385. 409,25-36. The obvious antecedent of 'this' might seem to be the immediately preceding suggestion about relatives of the second class, but there is nothing in Aristotle's text to support this suggestion; moreover, the relatives that are such 'in this way' that are the subject of the following lines are those of the third class. Alexander must therefore still have in mind *Metaph.* 1021a32, given as the lemma at 407,16, and the sequel to that text, which he quoted at 407,32-5; so that what he now says is a final attempt to explain the relationship between discriminatory powers and their objects.

386. 409,26, ***pros tauta***. There is no immediate antecedent to ***tauta***, but in view of the sequel, the pronoun must refer to ***ta paskhonta***, the things mentioned above that are acted upon by ***ta poiounta***, the agents.

387. 409,30-2. If this is, as Alexander says, Aristotle's position, then the latter is guilty of a *petitio principii*: for he is said to prove that knowledge and perception are referred to their objects because the latter *are* their objects.

388. 409,32-3. Alexander now takes note, although only in passing, of an obvious problem implicit in his previous explanation: how is it that the objects of perception and knowledge are referred to the latter? (see n. 371). It is certainly not true, as he suggests here, that these objects can be 'said to be just what they are *of* other things', i.e. of perception and knowledge, for thus their very nature would consist in their being referred to the latter; but it is precisely in this way, as Aristotle has pointed out (1021a26-30), that relatives of this third type differ from those belonging to the first two types, a difference that Alexander has affirmed vigorously (406,37ff.). He resorts finally to the familiar but unsatisfactory formula that these objects are relative because perception and knowledge are of them.

389. 410,2. Aristótle does not say this in ch. 7 of ***Categories***, the chapter devoted to relations, and in fact in ch. 8 he says just the opposite: 'Scientific knowledge, being a genus, is said to be just what it is of another (for it is said to be knowledge of something); but none of the particular sciences is said to be just what it is of another' (11a24-7); cf. *Top.* 124b18 (if the species is a relation, the genus must be, but not *vice versa*).

390. 410,17. The adjective ***teleios*** is derived from ***telos*** (end), a connection obvious in Greek but one not conveyed by 'complete', as ***teleios*** is translated throughout this chapter. ***Telos*** is as ambiguous as the English 'end': it may signify simply the terminus (***peras***) of time or of an

action (hence *teleutê*, the end of life), or the purpose an agent has in view when he acts, the specifically moral sense of *telos* in Aristotelian ethics. (These two senses coincide but conflict in the term *telos eskhaton*, the ultimate stage or the final end.) In addition, *telos* means maturity or fulfilment, the completeness that natural things attain in virtue of their form. Thus something is *teleios* when it has grown to its full size, but equally when it actualizes a natural capacity inherent in its form, e.g. its potentiality to acquire knowledge; see Alexander's explanation of change, *in Metaph.* 2, 153,17ff., and cf. 347,18 and 359,24 above. From this point of view anything, even an artefact, is *teleios* if it has all its parts, i.e. is whole or entire, but the adjective takes on the special meaning of 'perfect' when applied to human agents, those who have become experts in a particular art or science or who act habitually in accord with a *telos spoudaion*, a morally noble end.

391. 410,21. Considered as an eternal continuum extending up to the present moment, time has always outside it that portion of itself that is yet to come, in contrast to the segment of time occupied by an individual existent, which has a fixed limit outside of which there can be no additional time. Aristotle gives time merely as an example of something complete, but Alexander's explanation is rather of how a thing is complete *in respect to* time.

392. 410,26. These examples are in fact more primary instances of Aristotle's definition than time, for the term 'part' in the definition suggests the physical parts of material things rather than the arbitrary divisions of time, divisions that are potential, not actual.

393. 410,36-8. At first Alexander identified the complete or perfect man as one who possesses all the qualities in which a human being can excel, but he modifies this impossible ideal in view of Aristotle's examples of the doctor and flute-player: a person is complete if he possesses to the full any of the particular excellences at which men can excel.

394. 411,5, *teleiotês*. Here the term might be translated 'perfection', as Alexander has said previously that 'knowledge is the *teleiotês*, perfection, of the soul' (*in Metaph.* 1, 1,4); for as a person progresses from ignorance to knowledge, the change comes about in virtue of his form, the rational soul, 'and this is a completion or perfection' (*in Metaph.* 2, 153,20).

395. 411,9. Thus Alexander understands Aristotle's *eidos* not as 'form' but as 'species, class, or kind'. His interpretation therefore is that there is an excellence appropriate to any species of existent, be it man, horse, or dog, and that an individual within that species is more complete or perfect inasmuch as he is less deficient in any aspect of that excellence.

396. 411,12. Alexander says *merê*, endeavouring to distinguish these physical and extended 'parts' from the *morion tou megethous* ('portion' of a magnitude) in Aristotle's text. He wishes to avoid the natural implication that *megethos* refers to quantity, for that is the basis for the first definition of 'complete' (17 below). But although he himself has also used *megethos* in a metaphorical sense (*in Metaph.* 3, 200,1: the objects of geometry are 'intelligible magnitudes'), he does not give a satisfactory explanation of Aristotle's similar use of the term, concluding instead with a mere repetition of the text (15 below).

397. 411,19, *ha to oikeion telos spoudaion ekhei*. Grammatically, this is awkward unless *on* is understood with *spoudaion*. The received text of *Metaph.* has *hois huparkhei to telos spoudaion*, which Ross, followed by Jaeger, changes to *telos, spoudaion on*, a reading supported by Alexander at 21 below and 412,3.

398. 411,21-4. Alexander attempts to show the difference by a rather meaningless distinction: *en teleiôi einai* seems to mean 'to be in the condition of one who is perfect', i.e. complete as explained above, while *en telei einai* is the equivalent of *to telos ekhein*, 'to possess' or 'to have achieved one's end'.

399. 411,25-6. This is not quite accurate, for Aristotle says *eti* (again), his usual way of introducing a new meaning. But the point is valid: this third type does not seem to differ from the second; Aristotle himself omits it from his summary, and Alexander later includes it under the second type (412,3).

400. 411,31-2. Transposing *touto de ... kharin* to the end of the sentence. Hayduck prints this parenthetical statement after *epei ... eskhaton*, but placed thus it obscures the connection between that clause and *to eskhaton ... hêmôn*: i.e. death is said to be an end because it too is ultimate, and we call the ultimate an end, a paraphrase of 1021b29, *hoti amphô eskhata* (because both death and end are ultimate). The point of the parenthesis is that the term *to*

telos eskhaton (the ultimate or final end) signifies something quite different than death, even though this latter is ultimate in its own way.

401. 411,32-3. Bonitz attributes the line to an anonymous comic poet (*Index Aristotelicus* 607b26). The poet seems to be describing a man so wretched that the only purpose (*teleutê*) of his having begun life was that he might end it (*teleutê*), but the humour of the pun is lost on Alexander, who thinks that from this one would be led to conclude, falsely, that death is an end in the proper sense. On this point see further 413,32 below.

402. 411,34-7. This 'commentary' explains nothing, but the fault is Aristotle's. His casual and unexpected reference to the good and the final cause immediately after he has said that death is an end constitutes a *non sequitur* that cannot be defended; see Bonitz, op. cit. 263.

403. 412,3-4. On the text, see n. 397. Aristotle's own summary omits this third type; to correct that omission, Alexander suggests that the third type can be combined with the second.

404. 412,6-8. Time is indeed Aristotle's example for the first meaning of complete, but it certainly does not illustrate perfection within a genus, nor do Alexander's subsequent examples, which are also instances of physical integrity or wholeness. Superiority over other members of a class is in fact the definition of the *second* type of completeness as Aristotle originally described this type (1021b15), but he himself seems to confuse the two types in this summary, and Alexander follows suit.

405. 412,23. If *Metaph.* 1022a4-5 is taken as the single statement that it appears to be, the first definition in its complete form is: 'the last [part] of each thing, and' (*kai* epexegetic = 'i.e.') 'the first thing outside which it is impossible to find any [part] and the first thing within which are all [parts].' But Alexander breaks off the statement at *to eskhaton hekastou* because (as becomes clear only later, 31 below) he thinks it contains *two* definitions of limit. This interpretation makes it difficult to translate *to eskhaton* in a way suitable to both definitions. 'Terminus' seems the best solution, for it can designate both the mere cessation or stopping-point of an action, the sense of *peras* in Alexander's first definition, but also the boundary that encloses a magnitude, his second definition and the one he regards as a proper description of *peras*. 'Termination' is used in the translation to signify the *peras* that is death.

406. 412,24, *epigignomenon*. The word might involve a metaphor (death *overtakes* the one fleeing it), but probably has the more prosaic sense of something that comes upon a thing from outside, as Aristotle says that pleasure completes an activity 'not as a state intrinsic to it, but as an end that supervenes' (*EN* 10.3, 1174a31). Thus when Alexander uses the term again (36 below), he says that death 'does not belong to' the thing whose termination it is; that is, it is merely the cessation of life (413,4). On *epigignomenon*, see further 438,24 below and n. 606.

407. 412,26, *toiouton gar*. This is quite misleading: *toiouton* seems obviously to refer to *to eskhaton hekastou*, and *gar* implies an explanation of these words. But the quotation that follows does not, Alexander maintains, explicate *to eskhaton*, but offers a second definition of *peras*, which, both here and in his summary (414,21-2), he distinguishes from the first definition.

408. 412,31. A line, for instance, is potentially divisible, so that we can take a certain portion of it which we designate as 'the last part' of the line. But although this *last part* of the line now becomes the *first thing* in the line outside which there cannot be another part, the point, which is terminus of the line but not part of it, is still 'prior to' i.e. more ultimate than, this last part of the line.

409. 412,36. *autou ti tou pragmatos on*, lit. 'being something of the thing itself'. Normally, this would mean that limit is part of the thing whose limit it is, but Alexander goes on to reaffirm that according to the second definition that he postulates, a limit is not a part of the thing it limits. If there is any real point to the distinction between belonging to but not being part of, it must be that an event such as death is totally extraneous and incidental to the nature of the living thing whose termination it is, as *epigignomenon* suggests; but the same can hardly be said of the termination of a speech or of a process of thought (413,3); see the next note.

410. 413,3. These examples do not seem analogous to death as the *peras* of life. The peroration of a speech is the climax towards which an orator directs the whole speech, as the

telos (end) of an action is that which the agent intends from the beginning, and the conclusion (*sum-peras-ma*) of a syllogism is actually contained in the premises. In these cases, *peras* is not merely a cessation.

411. 413,7-8. See 373,27ff. above, and n. 172.

412. 413,10. A reference to the first definition of complete, 'that outside which it is impossible to find any, even one, part', 1021b12.

413. 413,12-13. The translation transposes *kai teleion men ... ektos ekhon* to line 11, before *epi de tou peratos*. As the words appear in Hayduck's text, they are not only out of place in the sequence of the thought, but *men* is left dangling. After the transposition, *men* repeats the initial *men* (10), the force of which has been lost because of the intervening parenthesis.

414. 413,13-14. A different meaning, that is, than when used with 'complete'. Both things are defined as 'the first thing outside which there is nothing'. In the case of the complete, this is in fact the last part required to make something a whole and integral; if this part is missing, no other part can be called 'first', nor is the thing complete. But if a geometrical figure, for instance, has been incompletely drawn, the lines that do exist are limits of the space they enclose, although they cannot be called 'the first thing beyond which there is no further limit', because only the line that completes the figure fulfils this requirement.

415. 413,18. Omitting *en tois allois* (Bonitz after S).

416. 413,28. The bodies referred to here are presumably those that are such *haplôs* (without qualification), in contrast to the bodies of living things. This curious distinction enables Alexander to assign different functions to *morphê* and *skhêma*, both of which, as he has just said, are responsible for the external form of bodies. Since *skhêma* is the term that he frequently uses to describe geometrical magnitudes, his point may be that the external forms of living bodies are not as rigidly determined as are those of triangles or squares: large or small, all the latter have precisely the same figure (*skhêma*), but although all men have an external form peculiar to their species, this *morphê* (shape) allows considerable variation beyond the merely quantitative. Cf. however 374,8 above, where the *morphê* of bodies is said to be 'in virtue of their *perata*', and see n. 176.

417. 413,37-414,1. Alexander's *dialogismos*, calculation, is Aristotle's *boulê* or *bouleusis*, deliberation, as this is described in *EN* 2.3. Deliberation begins from an end already determined, and seeks to discover the means best suited to attain it; this latter is the 'action' of which Alexander speaks. The agent deliberates until, as Aristotle says, '[he] comes to the first cause, which in the process of discovery is last' [*EN* 1112b18]; this moment is thus the end (*peras*) of deliberation and the beginnning (*arkhê*) of action. Deliberation is therefore a process of reasoning, carried out by the practical intellect, that terminates in action rather than in a formal conclusion: 'Deliberation about what is to be done is useless unless it is followed by choice, which is deliberative desire ... In [reasoning about] practical matters, action is the conclusion (*sumperasma*) of deliberation', Alex. *De An.* 80,5-10. See further *Alexander of Aphrodisias, Ethical Problems*, translated by R.W. Sharples, London and Ithaca, NY 1990, Problem 29 (= Bruns 160,5-25), 79-80 and Problem 21 (= Bruns 142,5ff.), 56.

418. 414,1-3. In his effort to show how both *to aph' hou* (that from which) and *to eph' ho* (that towards which) can be a *peras*, Alexander says that the end, as well as the means by which it is attained, is the terminus of deliberation. Technically, this is incorrect, for 'we do not deliberate about ends, but about what is relevant to the end ... having settled on the end, [we] examine how and by what means it will be attained' (*EN* 2.3, 1112b12-16). But it is true that if deliberation leads to a single action that will produce the end, as Alexander assumes to be the case, the end, once it has been attained through this action, terminates *all* deliberation and action, since the agent is now in possession of the good the desire for which initiated the whole process.

419. 414,5. At *Metaph.* 1022a8, Jaeger terminates the parenthesis after *kai eph' ho*, but Ross extends it to include *kai to hou heneka*, words that Alexander also takes to be explanatory of *kai eph' ho*.

420. 414,7. The text of *Metaph.* 1028a8-9 has, *kai hê ousia ... kai to ti ên einai*, 'the substance, i.e. the essence', but Alexander may have read *eidos* for *ousia*, or perhaps *eidos* is his interpretation of *to ti ên einai*. In any case, his treatment of the text is puzzling. Aristotle is clearly introducing a further meaning of *peras*, but Alexander seems to regard the

statement as an explanation (*gar*) of how *peras* and *arkhê* are equivalent, a most unlikely interpretation.

421. 414,8. This qualification because the second definition of *peras* was, 'the form of a thing's magnitude', where Alexander explained *eidos* as *skhêma kai morphê*.

422. 414,11, *touto*. The unexpressed antecedent could be either *eidos* or *to ti ên einai*, but the latter is more likely. Essence is that which limits, i.e. determines, man to exist as the thing that he is. This essence, in the form of the definition that expresses it, comes to exist in the intellect, and thus limits or determines our knowledge of man.

423. 414,17. Alexander is attempting to link the meanings of *peras* with those given for *arkhê* in ch. 1 of this book; there matter is implied in the definition, 'the first constituent from which a thing comes to be' (1013a4). And since Aristotle also says in that chapter that beginning has in general as many meanings as 'cause', and the causes are four, Alexander goes on to point out that limit has more than four meanings.

424. 414,26-9. The original sense of *kata* is local, as in the last meaning that Aristotle assigns to *kath' ho*, 'at' or 'alongside which'. But in philosophic usage, *kata* takes on a causal notion (n. 356), as in the first two meanings given for *to kath' ho*, an idea best expressed in English by, 'that in virtue of which'.

The translation omits the bracketed words [*hou legomena ... kata tode*], a brief summary of the meanings of *kath' ho* that is clearly out of place here.

425. 414,33-5. Alexander seems to feel that Aristotle's use of Plato's 'the good itself' requires some explanation, but the one he offers merely paraphrases *Metaph*. 1022a15. He might, however, have cited *EE* 1.8, where Aristotle adopts the term to describe his own candidate for the supreme good toward which all human life is directed: 'it is obvious ... that the good we are seeking is neither the Idea of the Good nor the good [as something] common ... but that the good-itself (*auto to agathon*) would be the *end* of the goods that can be realized by man' (1218b8-13).

426. 414,36-8. Surface is called *prôtos* in a different way inasmuch as it is both the subject or substrate in which the attribute colour inheres, and the recipient of this attribute. From the perspective of colour, surface is the *proximate* subject in virtue of which body, the ultimate subject, is coloured (416,10), and this is the sense of Aristotle's second definition of *to kath' ho*. But from the perspective of the body, surface is the *first thing* in it capable of receiving colour, and it is this aspect that Alexander emphasises in describing *to kath' ho*, as here defined, as *to prôton dektikon* (the first recipient); this term is his own, although he attributes it to Aristotle (415,3).

427. 415,2-3, *deuterôs de*. In Aristotle's text, *to prôtôs legomenon ... deuterôs de* refer to the primary and secondary meanings of *kath' ho*. Alexander begins to paraphrase this statement, but, as a result of his remark about form and being, he changes the construction, so that *deuterôs de* (secondarily) becomes a reference to matter as a factor in existence rather than marking a second meaning of *kath' ho*.

428. 415,14, *huparkhei te kai legetai*. A paraphrase of *Metaph*. 1022a19: *to kath' ho isakhôs kai to aition huparxei*, literally 'there will be a *kath' ho* as many times as there is a cause'. But in the next line, Alexander uses *huparkhei* in a quite different sense: the thing said to be 'in virtue of' another *exists* because of it, i.e. has it as its cause.

429. 415,20. It seems that the proper conclusion to the argument should be, 'was asking about the final cause', and this change would also establish the necessary contrast with the next question, which illustrates a different kind of cause.

430. 415,28. In this final instance, *kath' ho* has a purely local sense for which 'in virtue of' is not appropriate.

431. 415,35. Throughout the translation, *kath' hauto* (*per se*) has been given simply as 'by' or 'in itself' except in the case of essential predication (nn. 34, 145). But in the present context it must be translated 'in virtue of itself' because it is presented as a special case of *kath' ho*, 'in virtue of which'.

432. 415,35-6. He means that it is a particular instance of the more general term, *kath' ho*. The sentence would be more intelligible if *kai* were *toutestin* (that is), for this clause explains that something belongs 'in virtue of itself' because it is part of the essence. *prôtôi* is

equivalent to *prôtôs* (in the primary way), that is, essentially, the way in which genus and differentia 'belong' to the subject of which they are predicated.

433. 416,7, *ê tôn autou tini*. In Aristotle's text (1022a30) these words can be translated 'or in one of its parts', but since Alexander takes them in reference to the surface, which is not, properly speaking, a part of the body, we must render *esti tou autou* as 'belongs to', although to say that the surface 'is something of the body', i.e. belongs to it, seems the same as calling it a part. And at 16 below, *hê psukhê ousa ti tou zôiou* clearly means, 'the soul is part of the animal', as he goes on to explain.

434. 416,16-17. *Prôtê* is best taken as adverbial and in the sense of 'directly', for *to zên* (lit. 'to live') is for an animal its *to einai* (being) (cf. *DA* 2.4, 415b13), and being comes to the composite of body and soul by way of the form; so that life resides directly in the soul, and the animal lives in virtue of its soul (see n. 183). But *prôtôi* has its usual sense; the soul is man's primary or principal part inasmuch as, in the ontological order, form is always prior to matter.

435. 416,19. Obviously not every part 'has the status of matter', for the soul too is a part. What he probably means is that as a thing can be said to have a certain attribute or perfection 'in virtue of itself' because one of its parts, the form, is the primary possessor of that attribute, so it can be said to have 'in virtue of itself' attributes that belong directly to its material component, as man is extended, heavy, etc., because of his body. – The translation omits the bracketed words at the beginning of line 20.

436. 416,20. Perhaps a reference to *Metaph*. 8.4, 1044b15-18, where Aristotle says that it is not clear, in the case of sleep, what the *prôton paskhon*, the thing directly affected, is. We can say that it is the animal that sleeps, but in virtue of which of its parts, and what is the proximate subject of sleep? This will be the heart or some other part.

437. 416,29-30. Aristotle does not mention 'properties' in the present text, but Alexander correctly points out that *hosa monôi huparkhei* (whatever attributes belong to the thing alone) suggests the definition of property given in *Topics* 1.5: 'that which does not manifest the essence, but yet belongs to the thing alone and is predicated convertibly of it' (102a18).

438. 416,30-1. That a property *huparkhei panti* (belongs to every instance) is Alexander's addition to Aristotle's definition of property: 'property in the unqualified sense' (i.e. as distinct from the common attributes) 'would be that which belongs to the thing alone and to every instance', *in Top*. 1, 39,20. (He may be thinking of the statement at *An. Post*. 1.4, 73a28-9: 'by [predicated] of every instance, I mean whatever is not predicated of one instance but not of another nor at one time but not at another.') Without the addition of 'belonging to every instance', the definition of property is in fact incomplete: 'it is possible for there to be certain things that belong to the thing alone, but are not properties.' For example, the *actuation* of such properly human capacities as the ability to count, to reason, to laugh, even to prepare food, 'are not properties because they do not belong to every instance, for the *capacities* belong to every instance and at all times, but their *actuations* do not belong simultaneously to every instance nor at all times' (*in Top*. 1, 46,25-9), although these activities do belong to man alone.

439. 416,31. Omitting *tôn en autôi* (of the parts in the subject), which may be the insertion of a scribe who took *panti* as meaning, 'to the whole subject'.

440. 416,33. In comparison, that is, with the common attributes, which are predicated of different subjects; cf. 417,2 below.

441. 416,37-417,1, *dio to kekhôrismenon kath' hauto*. The text of *Metaph*. 1022a35 as Alexander quotes it here is the reading adopted by Jaeger. But Ross, followed by Kirwan, reads *kai hêi monon di' auto kekhôrismenon kath' hauto*, so that the reason for the attribute's belonging *per se* to the subject is that the *subject* 'is considered apart by itself'.

442. 417,3-4. But *kath' hauto* followed simply by the dative is very awkward (in virtue of itself to the surface), so that it seems *huparkhei* should also be supplied: 'to be coloured belongs to the surface in virtue of itself.'

443. 417,5. In the *Categories*, Aristotle gives *diathesis*, along with *hexis*, as an instance of quality, but disposition is impermanent (8b26-8). For a comprehensive account see R. Brague, 'De la disposition: A propos de *Diathesis* chez Aristote', *Concepts et Catégories dans la pensée antique*, Paris 1980, 285-307.

444. 417,13. As Bonitz points out (op. cit. 267), this interpretation of Aristotle's *ê kat' eidos*

(1022b2) is dubious, for the arrangement of the parts of a statue seems to be an instance of the first type of disposition, *kata topon*, with which Alexander next classifies it.

445. 417,19. Alexander's use of *eidos* here and at 22 below is confusing, for he has said above that *eidos* in Aristotle's text means *morphê* (shape), and that disposition in this sense is included in the statement he is trying to explain. Presumably, then, *eidos* must now be understood as the form that is soul, whose powers have position accidentally inasmuch as they function through different parts of the body that have position, as e.g. the sensory powers operate in and through the various organs; but see the next note.

446. 417,19-20. Reading *pros* before *allêla*. Without this insertion, *hupomenousin* is transitive, but the transitive meanings of *hupomenein* are impossible in the present context, which refers to the use of the verb at *Cat.* 5a28-9. In that passage, Aristotle distinguishes quantities made up of parts having position *pros allêla*, relative to one another, from those whose parts do not have position. Of the latter sort are the parts of time, none of which is permanent (*hupomenei*) and consequently cannot be said to have position. But this text cannot be cited in support of Alexander's explanation that the powers of the soul have position *per accidens* in virtue of the parts in which they reside, for although the hierarchical structure of these parts is permanent, Aristotle's point is that position is dependent, not on the permanence of the parts, but on the fact that we can determine precisely where each part of a quantity is situated and at what point it makes contact with other parts, something that is clearly not possible in the case of the powers of the soul, which are not quantitative. Cf. the earlier use of this text from *Categories*, 396,6-8 and n. 292.

447. 417,23. On the derivation of the two principal senses of *hexis* see n. 275. The English 'having, possession' conveys the first sense only inadequately, since it does not suggest an activity. Another term such as 'state' or 'habit' is required for the second sense.

448. 417,25. 'Having' is an activity, as opposed to mere possession or ownership, when one is actually wearing a garment that belongs to him. Ross points out that as instances of the category *ekhein* Aristotle gives 'to be shod' or 'armed' (*Cat.* 2a3), which is not the same as possessing a pair of shoes or a breastplate.

449. 417,27. Liddell-Scott cite only this source s.v. *ekhêsis*, which Alexander coins, on the analogy of *poiein-poiêsis* suggested by Aristotle, to bring out the idea of activity contained in *hexis* as derived from *ekhein* active. In English, 'wearing' or 'using' might suggest this idea, but at the expense of the etymology, which is preserved in 'holding'.

450. 417,33-4. '*This* having' is *hexis* in the first sense, in contrast to its second sense, that of 'state', of which there *can* be a having; in this case it is possible to speak of a *hexis hexeôs*.

451. 418,1-3. This sprawling sentence becomes so unmanageable that it cannot be construed grammatically. It is a prime instance of Alexander's tendency to belabour the obvious. Stated simply, Aristotle's not very profound point is that I can say, 'I have (or am wearing) a coat', but not 'I have the having of a coat', because the object of having is the thing had, not its possession.

452. 418,5-6. In *Categories*, 'state and disposition' are said to be instances of quality, but the former 'has a much longer duration and is more stable' (8b27-8), a point that Alexander incorporates into his own definition of *hexis* (11). But the two terms are often used without distinction.

453. 418,7. The function of the moral virtues is to regulate the passions (*in An. Pr.* 1, 5,25), so that these virtues are referred primarily to their possessor (cf. Aristotle, *Top.* 5.3, 131b2, 'the property of virtue is to make its possessor good'). But Alexander is thinking of the political or social virtues, which make one not only a good man but a good citizen (*Pol.* 3.4, 1276b30-4). The reference to justice, which Aristotle calls 'a communal virtue' (*Pol.* 3.12, 1283a38), continues this idea; Alexander's description reflects Aristotle's statement that, 'justice is the complete virtue because its possessor is able to practise virtue towards another and not only towards himself. For there are many who are able to act virtuously in their own affairs but not in their dealings with others' (*EN* 5.1, 1129b31-4).

454. 418,9. Although Alexander puts this in the neuter ('the thing that is disposed'), justice is obviously a relation between persons, not things.

455. 418,10, *hai kakotekhniai*. These might be rhetorical techniques designed to confuse

or deceive, but the term more probably indicates a skill used for evil purposes that pretends to be an art, as sophistic tries to pass itself off as wisdom (*in Metaph.* 2, 260,17).

456. 418,15. 'Each virtue exists both naturally or otherwise, namely together with *phronêsis*, practical wisdom' (*EE* 3.7, 1234a29). A natural virtue is a state (*hexis*) that, like its counterpart, *aretê kuria*, virtue in the precise sense, is the source of acts of justice, temperance, courage, etc., but without the cognitive element, practical wisdom, necessary for the agent's conscious choice of such acts (*EN* 6.13, 1144b3-17). See further 420,21-5 and n. 478.

457. 418,18. The reference is to *Cat.* 9a28. Alexander has earlier referred to these passive qualities; see 401,34-6 and n. 331.

458. 418,19. As, that is, he included them among instances of quality at 1020b10, although he had previously classified them as quantities; see n. 305.

459. 418,20. That is, there is not question of *metabolê*, substantial change, in which matter acquires a new form. It is surprising that, having made this point so clearly, Alexander should even suggest the possiblity with which he concludes this sentence.

460. 418,21, *epitasin ê anesin*, lit. 'tightening or loosening', as the strings of the lyre (Pl., *Rep.* 349E), but in this context the sense is not clear. Alexander might mean that bodies are altered by an increase or diminution of their heaviness or lightness, but it is difficult to see how these natural attributes could be more or less intense in the same body. Perhaps, then, alteration consists in the increased or diminished speed at which bodies are borne up or down in virtue of their inherent heaviness or lightness, as Aristotle speaks of the acceleration and deceleration (*epitasis kai anesis*) observed in irregular movements (*Cael.* 2.6, 288a17-19).

461. 418,27 and 31. 'Affection' is too weak to express these final senses of *pathos*; 'suffering' is perhaps adequate at 27, and 'affliction' at 31. It is noteworthy that Aristotle does not mention here two other meanings in which he uses *pathos*: as 'attribute', and as 'intense feeling' or 'passion', a sense so important in his ethical theory.

462. 418,30. Alexander has used *enokhlêsis* earlier in the more general sense of annoyance or irritation (*in Metaph.* 1, 17,14), but here, as Richard Sorabji has pointed out to me, the term has the meaning given it by the Stoics: that of a constricting and painful emotional disturbance. Thus, according to Diogenes Laertius, the Stoics defined *enokhlêsis* as a species of *lupê* (pain or grief) that oppresses us or engenders the feeling of being in a cramped space (7, 111); cf. ps.-Andronicus *Peri Pathôn*, Pars prior, 2: Glibert-Thirry, 227, 41, where *okhlêsis* is similarly defined. These emotions are morbid or pathological (*nosôdeis*), 'corrosive disorders of the mind', as Cicero calls them (*Disp. Tusc.* 4, 16). Sorabji notes further that in light of this Stoic context, Alexander's reference to 'alterations', i.e. manifestations of passion, 'that miss the mark' (*hêmartêmenas*) might suggest the Aristotelian ethical ideal of *metriopatheia* (moderation of the passions) in contrast to the Stoic doctrine of *apatheia* (suppression of the passions). Alexander would think that only passions that exceed the virtuous mean go astray, whereas for the Stoics *all* passions are aberrant (*SVF* III, 136,8: everything that goes counter to what reason prescribes is a *hamartêma*).

463. 418,34ff. Although Aristotle repeats this very broad definition of privation at 1055b4 ('what is completely incapable of having an attribute'), his general position is the more precise notion expressed by the second definition. He attempts to distinguish privation in this first sense from mere negation by saying that the attribute in question is one that 'could naturally be possessed', i.e. by *some* subject, thus excluding the predication of attributes that are intrinsically impossible, for to say that, 'a line is not actually infinite' (Ross's example) is a negation but does not express a privation (on impossible predicates, see Alexander, *in Metaph.* 1, 92,23-5).

464. 418,37. He has previously denied that privation is equivalent to negation (391,34ff.) See further 393,5ff. and n. 278.

465. 419,3. On the mole, see n. 476.

466. 419,5-7. The example is out of place here, for the sightless whelp, like the boy incapable of generating (393,15-16), is without a certain attribute or capacity only at a time when its possession is *not* natural.

467. 419,12 *en hôi*. This is not the *en hôi* (in which) of Aristotle's text, which Alexander explains last (18 below) although it is the first condition mentioned in the text. Here 'in which'

means the *organ* in which sight occurs, whereas later it means the medium (light) that makes sight possible.

468. 419,23. This is the so-called 'alpha-privative', preserved in English words taken over directly from Greek (a-nomalous, a-cephalous). But the usual English negative prefixes are *im-*, *in-*, *un-* (im-mense, in-visible, un-equal), and in many cases English expresses the idea by the suffix *-less* (law-less, head-less). Aristotle calls privative terms 'negations', although, as Alexander points out, a negation, properly speaking, is a proposition, e.g. 'This number is not equal to that.'

469. 419,28. Aristotle's examples seem to be on a par as illustrations of privative terms, but Alexander takes *anison men ... aoraton de* to indicate that these privatives have different meanings. 'Unequal' means simply the lack of an attribute that a subject could have and is equivalent to a privation; but 'invisible' signifies not only the mere lack of an attribute, but denies the possibility that the subject could possess the attribute, and hence is equivalent to a negation. This point however, is not very clear in his exposition.

470. 419,29. *hôste* (so that) is suspect, since the fact that privation signifies the lack of an attribute is not the result of there being a privative term with this meaning. Perhaps we should read *hôs te*, 'as privation too ...'.

471. 419,30. The Greek privative term *aoratos* can express both the cases mentioned here, but in English two such terms are required: a thing is 'unseen' in the first case, but 'unseeable' or 'invisible' in the second.

472. 419,31. Adopting Bonitz's conjecture that *kai to holôs mê pephukos horasthai* is required after *horômenon*. This addition is needed not only to distinguish *aoraton* from *anison*, but grammatically, to supply a response to *men* (30).

473. 419,31. Reading *tôi proeirêmenôi tôi* for *hôs proeirêmenou tou* (Bonitz after S).

474. 420,4-5. This apparently means that certain animals are called *a-trakhêloi*, 'neckless', not in the sense that they lack a neck entirely but that, like fruit that has only a small pit, they have only a very short neck. From this we can infer (*oun*) that privation and privative terms do not mean only the total absence of an attribute but its defective condition, the same point as that made at (2) above.

475. 420,7. *atmêtos* means either 'uncuttable' or 'uncut'. Aristotle uses the term in the first sense: 'because it cannot be cut' [1023a7], but Alexander, by explaining it as *mê temnomenon*, 'uncut', subverts the whole point, for what is simply uncut may be cuttable, as what is 'unseen' could be visible (419,30 above and n. 471).

476. 420,15, *pepêrômenos*. The participle might mean 'maimed, mutilated', so that blindness would be the result of an accident, but Alexander is more probably referring to a congenital defect. Thus Aristotle uses *pêrousthai* in describing the mole, an animal that has no eyes that can be seen on the outside, but that, on being dissected, is found to have rudimentary parts of eyes under the skin, *hôs en têi genesei pêroumenon*, 'showing that the parts *are stunted* in development' (*HA* 1.9, 491b34, Oxford translation).

477. 420,17. The quotation is out of place and actually contradicts the point that Alexander is making. It is Aristotle's *corrective* of the prevalent common belief that good or bad men either possess the virtues in their fullness or are completely amoral.

478. 420,21-5. Alexander's explanation of Aristotle's statement that, 'not everyone is good or bad, but there is also an intermediate state' (1023a6), contains some interesting and original elements. The moral agent he describes is neither virtuous in the full Aristotelian sense nor utterly depraved. His *hexeis* are the natural virtues (n. 456), habits or patterns of behaviour that, like the *hexeis* of truly virtuous men, enable him to function morally but without *phronêsis*, practical wisdom. Imagination plays an important role because it arouses the appetitive impulse (Alex. *De. An.*, 77,16, 'impulse is a movement of an animate being in response to an imagination of something to be pursued or avoided'), and from this impulse actions result (*id.*, 77,16, 'practical activity follows the assent (or, approval) given to the imagination'). A healthy imagination presents to the agent objects of desire that are real, not seeming, goods such as a truly good man would pursue (cf. Ar., *EE* 2.1, 1219b24, 'the imaginings of good men are better'), and right opinion, substituting for *phronêsis*, must approve of what imagination proposes. (Here Alexander's language suggests the thesis put forth in Plato's *Meno* (97A-C) that right and true opinion is no less a reliable guide in practical

matters than *phronêsis*.) Given these conditions, the moral agent often acts 'as the good man would': that is, his actions, objectively considered, are the same as those that the virtuous man deliberately chooses under the guidance of *phronêsis*. Finally, the unusual plural *proaireseis* does not signify Aristotle's *proairesis*, 'desiderative thought or intellectual desire' (*EN* 6.2, 1139b4-5), for there is no suggestion that the moral agent in question reaches a choice of means through deliberation (n. 417); the word seems rather to mean the principles or convictions dictating how one ought to act that are developed pragmatically out of actual experience in making moral decisions.

479. 420,26. 'To have' is satisfactory for the first two meanings given for *ekhein*, but thereafter the stronger 'to hold' is required.

480. 420,31. In his first definition of *ekhein*, Aristotle uses the verb *agein* in the unusual sense of 'treating' someone in a certain way. Alexander now uses *agein* in its primary sense to describe the despotic tactics of tyrants, who drive their subjects like cattle under the stimulus, we may suppose, of whip and goad.

481. 420,32. On *ekhein* as 'wearing', see n. 449.

482. 421,13-15. Aristotle ascribes the theory of the *dinê*, vortex, to Empedocles: *Cael*. 2.1, 284a24-6 and 2.13, 295a17-9.

483. 421,20. On *rhopê*, see 357,27-30.

484. 421,23. Of Aristotle's three examples of 'having' in this sense, only fever could normally be said to be 'in' the sick person. But the city is not in the tyrant nor clothes in the wearer, unless 'to be in' is taken to mean 'in the possession of'.

485. 421,25-6. The point is that in either case the form is said to be *in* the matter. As a result, the soul is in the body, and in his *De Anima* Alexander explores all the possible meanings of 'to be in' to explain how such a union is possible (13,9-15,29).

486. 421,29. Here 'in' really means 'within', as the bundle of sticks could be said to be within the rope enclosing them, or a book within its binding.

487. 421,32-6. *hê protê hulê* is not 'prime matter', but that one of the four primary bodies or elements from which a certain class of material substances is ultimately derived. It is called 'primary' because, like a genus, as Aristotle loosely names it, it is prior to the things derived from it, but also 'last' or 'ultimate' because it is that to which one finally comes in tracing bronze or the like back to its remote source. (On the ambiguities of this terminology, see 364,35-9 and n. 104.) Alexander's alternate interpretation is very strange, for it suggests that there might be some kind of matter between prime matter and the elements.

488. 421,37. Aristotle has used the example of insulting language as a cause earlier in this book (5.1, 1013a10); at another place he attributes it to the poet Epicharmus (*GA* 1.8, 724a29). Alexander cites both it and the rape of Helen as instances of the productive cause, *in Metaph*. 3, 186,10.

489. 422,6, *ex eidous te kai hulês*, lit. '*from* both form and matter', for the whole is from its parts even more properly than a part is from the whole. But to translate thus here would be to introduce yet another sense of being 'from something', one that is the opposite of that now being described; cf. 28-30 below.

490. 422,7. Omitting *ek genous ta merê*; the text is corrupt at this point.

491. 422,12. Similarly, that is, to the way in which the verses of the *Iliad* are from it. Alexander's handling of this text, 1023a32-3, is quite awkward, for Aristotle gives both the *Iliad* and the house as examples of wholes from which parts come. But the house is more clearly an example of an artificial body in contrast to a natural body, which is unmistakably a continuum, hence a whole.

492. 422,16-20. Among things generated naturally, *eidos* (form) is the end which matter seeks, so that when matter is united with form, the resultant composite is complete, i.e. a whole. Among things produced artificially, *morphê* (shape) is analogous to *eidos*, so that when matter such as bronze or stones has been united with an appropriate shape, the resultant composite, statue or house, is complete and can be called 'a whole', even though its parts are not naturally continuous as are those of an organism.

493. 422,22. Reading *eidos* after *legôn* (LF). The parenthetical remark points out that *eidos* as essence is complete (it includes the genus and differentia), in contrast to *eidos* as form, which is incomplete until united with matter in the composite.

To understand the commentary that follows, the reader must have Aristotle's complete text before him: 'Things are also said to be "from another" as the form (*eidos*) from its part, as man, e.g., is from "biped" and the syllable from the letter. For this case differs from the way in which the statue is from bronze, for the composite substance is from perceptible matter, but the form is also from the matter of the form' (1023a35-b2).

494. 422,24. Form, that is, in the sense of essence, not form as soul.

495. 422,25. More precisely, a constituent of man's essence, 'two-footed rational animal'.

496. 422,26-7. A letter is not a differentia of syllable as 'biped' is of man, but it must be mentioned in defining syllable as biped is in defining man; and since a syllable is defined as 'a combination of letters', we can say that syllable is 'from the letter' as man is 'from biped'.

497. 422,36-7. By 'the matter of the form', Aristotle might seem to mean the genus, which, as he will say in ch. 28 (1024b8), is the substrate of the differentia in a way analogous to that in which matter underlies form; and Bonitz in fact thus explains the present text (op. cit. 271). But form as essence is not the differentia alone, nor can its matter be simply the genus; this imperceptible matter is, as Alexander correctly says, the 'parts' belonging to the essence, those that he later identifies as the parts of the definition, i.e. both genus and differentia (423,6-8).

498. 423,1. The *stoikheia*, lit. 'elements', of the syllable are, it would seem, perceptible to hearing, but he may mean not perceptible to the grosser sense of touch. Or perhaps the idea is that the letters are not perceptible *as elements*; that is, they lose their quality of individually perceptible sounds when combined in the single sound of the syllable.

499. 423,11-13. On the earth as nutriment of plants, see n. 70. By 'not from all the earth' or 'the whole earth', Alexander means 'not from everything that earth is', since this sense of 'from something' applies to only part of that from which a thing comes. By contrast, the whole of a particular piece of bronze is the matter from which a statue comes, but the clump of earth out which a plant grows is not 'used up', as it were, to nourish the plant; only a part of it serves as nutriment.

500. 423,19-20. Omitting *kai auto to sperma* with F, as Hayduck suggests should be done.

501. 424,6. The complete text is: 'Again, the things into which the *eidos* might be divided without quantity are also called parts of it; for this reason people say that the species are parts of the genus', (1023b17-19). It is not clear whether by *eidos* Aristotle means 'species', or simply mentions species as an instance of the kind of division he is describing; but Alexander takes *eidos* as 'species', and finds the whole statement difficult to explain.

502. 424,8. The text reads *eidos de ētoi* (either) *legei to ti ēn einai*, as if Alexander intended to give an alternate meaning for *eidos*, but there is no *ē* (or) in what follows. What he seems to be suggesting is that by 'species' we can understand either the *definition*, e.g. 'man is two-footed rational animal', which is divided 'without quantity' into genus and differentiae; or the *infima species*, 'man', the division of which into individual men is 'with matter'.

503. 424,11, *ta atoma tôn eidôn*. This could mean, 'those of the species that are indivisible', as e.g. man, horse and cow are ultimate species beyond which the genus 'animal' can no longer be divided (cf. 383,37-384,2). But this division is not 'with matter', for the genus is contracted into its *infimae species* by the addition of immaterial differentiae. Hence Alexander means the particulars that make up an *infima species*, those that are individuated by their matter; see 384,4-5 and n. 238.

504. 424,12-13. This contradicts the statement in Aristotle's text that, 'the species are parts of the genus', one that Aristotle attributes to others (*phasin*, people say). Later, however, after he has explained how a genus is divided 'as genus', Alexander repeats the statement as being Aristotle's opinion and apparently concurs with it (24-5 below). He is of course correct in saying that the species is not part of the genus, for a part properly so called is predicated of that of which it is part, as the genus 'animal' is predicated of the species 'man', and the species of the individual, 'Socrates'. But the species cannot be predicated of the genus ('Animal is man') nor the individual of the species ('Man is Socrates'). The problem really arises from Aristotle's language, that e.g. 'genera are divisible into species' (*Metaph*. 3.4, 999b4), or that 'genera are divisible into several different species' (*Metaph*. 11.1, 1059b36), for 'division' suggests a resolution into the parts of which something is composed (cf. 26 below), but a genus does not consist of its inferiors.

505. 424,14. A reference to the fact that Aristotle sometimes uses the two terms without regard to their precise meaning; see e.g. 410,38. Alexander himself may be guilty of the same laxity: see 429,38 below and n. 547.

506. 424,16-21. Alexander's point emerges only with difficulty from these lines. He has just said that the division of which Aristotle is speaking is that of the species, not the genus. But, he continues, the species *is* being divided *as a genus*, that is, without matter. Next he explains how a genus is divided not as a genus but as a quantity, precisely *not* the sort of division that, he maintains, Aristotle ascribes to the species. Only after this misleading, almost parenthetical, comment does he show what is meant by the division of a genus *as* a genus.

507. 424,17-19. Such division is possible only if the logical entity 'animal', a universal in the intellect, is mistakenly thought of as a flesh-and-blood animal, which of course does not exist as 'animal', but as man, horse, or cow. This is the sort of confusion introduced into Aristotelian logic by Porphyry's 'tree', but Alexander is careful to point out that animal, so divided, is not the *genus* 'animal'.

508. 424,22. This text is taken from the next meaning of 'part' that Aristotle gives, but Alexander thinks it relevant here because the species can be regarded as a whole composed of matter and form, although he rejects this terminology in the immediate sequence (24).

509. 424,23. Form, that is, as the differentia is form in relation to its matter, the genus. This latter is 'divided' by means of the differentiae, but the species is divided into both genus and differentia.

510. 424,23-4. The plural indicates that Alexander is thinking of the case of subordinate (*hupallêla*) genera, in which the higher genus is successively contracted by additional differentiae, each of which produces a sub-genus. He has earlier given the example of the genus 'animal' and the differentia 'winged', which together constitute the subordinate genus 'bird'; but the actual species of bird such as hawk and eagle require the addition of another differentia to 'bird' (365,22-6; 366,3-6).

511. 424,26-7, *to holon, ê to eidos ê to ekhon to eidos*: 'the whole, [i.e.] either the form or that which has the form', 1023b20. The comma after *to holon* was inserted by Bonitz, 'because there is not question of three things, whole, form, composite, but [Aristotle] is distinguishing two meanings of "the whole," namely the form itself ... or the composite, i.e. the concrete thing' (op. cit. 272). Alexander, however, read the text without a break, as Hayduck prints it, so that he understands: '*either* the whole *or* the form *or* the composite', as becomes clearer at 31ff. below. Thus he attempts to explain how this meaning of part, 'that into which something is divided or from which it is composed', applies to three things: 'the whole', taken as a body that is divided into its material parts; 'the form', taken apart from the composite of matter and form; and 'the composite' of matter and form, which therefore *includes* the two preceding things.

512. 424,29-31. Earlier in the book (5.2, 1013b22), Aristotle called *eidos* (form) a *holon* (whole). For Alexander's commentary on that text, see 351,27-33 and n. 46. In the present context, however, he thinks that Aristotle is treating form as something different from the whole, taking it, that is, apart from the matter with which it is united in the composite, so that he must find an example to show how form in this sense can be divided into parts. Soul seems to be the kind of form needed, for it contains distinct powers that can be regarded as parts. But the example is a dubious one, because the powers of the soul are not parts into which it can be resolved (see 417,14ff. and n. 446), as the present definition of part requires, nor do forms other than soul exhibit this kind of 'composition'.

513. 424,33. Taken, that is, apart from its union with soul in the composite, hence as the component that can be divided into material parts.

514. 424,34. 'For instance, both the bronze (that is, the matter in which the form is) and the angle are parts of the bronze sphere or cube', 1023b20-2.

515. 425,1. That is, parts other than those of the form taken in itself apart from the composite, as he has explained form in his commentary on the fifth meaning of 'part'.

516. 425,3. Because, that is, the genus, which is analogously matter, is part of the definition.

517. 425,11-12. The terminology is somewhat misleading. In the first case, the 'one thing'

is the common genus or species, by participating in which each particular inferior, although distinct from the other inferiors, *is* that one thing; this is the unity of the universal. In the second case, all the parts of a whole unite to *make* one thing, the complete being; this is the unity of a continuum.

518. 425,13, *to gar katholou legomenon*. This might mean, 'what is *called* a universal', but it seems rather to be a syncopated version of 1023b29, *to men gar katholou kai to holôs legomenon*, 'for what is universal and what is said to be as a whole' (Kirwan), as if Alexander considered *kai to holôs legomenon* as merely explaining *to katholou* ('i.e. what is said in a general way') and thus joined *legomenon* directly to *to katholou* taken adverbially: 'for what is said universally … .' His *holon ti dokei einai* (is thought to be a kind of whole) in the next clause paraphrases Aristotle's *hôs holon ti on* (with the implication that it is a kind of whole).

519. 425,18-19. This would be stated more intelligibly with reference to the formula: 'because the definition of the common thing can be applied in the same way to all of them.'

520. 425,25. Aristotle's text is: 'But what is continuous and limited [is a whole] when it is some one thing made up of several [parts], especially if these latter exist in it potentially, but if not, if they exist in it actually. And among these things themselves, those are more properly [wholes] that are such by nature than those that are by art, as we also said in reference to what is one, since wholeness is a kind of unity', 1023b32-6.

521. 425,30. *êdê* is sequential: 'then' or 'next' after the whole as continuum just described. This might indicate that the word to be supplied here should be 'continuous' rather than 'whole', but at 34 below Alexander restricts continuity to things whose parts are potential; see n. 523.

522. 425,29-33. Until a line or other continuum is actually divided, its parts exist only potentially, as Alexander explained at 387,17ff. above. But although the stones, timbers and other parts of the house exist as actual parts in the house, they are not a mere aggregation, as they were prior to its construction, but a whole because of the form imposed on them by the builder, which consists in the way in which they are combined in relation to one another.

523. 425,34. Reading *tôi* for *hôs* (Bonitz after S). From this it would appear that Alexander does not consider artificial wholes to be continua even in a secondary sense, although in his treatment of 'one', Aristotle says that things tied or glued together are continuous (1016a1).

524. 426,12-14. Aristotle states this differently and more clearly: 'their *nature* remains the same in the transposition, but their *shape* does not, for instance wax or a cloak' (1024a4-5). Alexander says that the shape remains because a piece of wax, e.g., can be moulded into many different shapes but will always retain *some* shape, as will the piece of cloth cut to various patterns.

525. 426,16-17. We can say, 'all the air around us' or 'all the water before us', to designate an amorphous conglomerate, but not 'the whole air' or 'the whole water', because the latter would imply that the homogeneous elements making up the aggregate are 'parts' in the proper sense, i.e. dissimilar constituents that must have position in relation to one another to constitute a whole.

526. 426,18ff. Aristotle's distinction between the singular *pan* and the plural *panta* is difficult to convey in English. The translation attempts to bring out the sense by adding 'in the singular' and 'in the plural'; these phrases are not enclosed in brackets because a Greek reader would understand them as part of the forms *pan* and *panta*.

527. 426,21, *pas arithmos*. It would seem that this should be *pas ho arithmos*, for Alexander is clearly referring to 1024a10, *pas houtos ho arithmos*, 'all this number', and the sense requires 'all the number', for the number in question is not *all* number, as *pas anthrôpos* at 26 below is all man, but a definite number made up of just so many units.

528. 426,26. In light of what precedes, *pas anthrôpos* can only mean 'all man', i.e. the totality or whole which includes all men. But *pas anthrôpos should* mean 'every man', the sense that in fact it has in ordinary usage, as Alexander has explained above that a universal is predicated of every one (*kata pantos*) of its inferiors. *Pas ho* can mean 'the totality' or 'the whole', but *pas* alone is 'every'; cf. *in An. Pr.* 1, 24,31-25,2: 'The predicate is said truly of the whole subject (*kata pantos tou hupokeimenou*) when it is impossible to find even one instance of the subject of which the predicate will not be said; for instance "animal" [will be said] of every man (*kata pantos anthrôpou*), for it is impossible to find a man of whom "animal" will

not be said.' The opening sentence of the next chapter well illustrates the regular meaning of *pas* as 'every'.

529. 426,27ff. In this chapter, Aristotle does not follow his usual procedure by distinguishing various meanings of 'mutilated' (cf. 428,8 below), but instead lists the conditions required if a thing is to be so designated. These conditions have been numbered in the translation to mark the divisions in Aristotle's text as Alexander understands them; the transitions are not always obvious.

530. 426,35-6. One unit is in fact half of the number two, but there is no evidence that Aristotle intends the example to be extended to things generally, as Alexander does here. Number is not mutilated in any sense, so that what is true of numbers is not relevant to things. And to say that a thing is not mutilated *even* if half of it is removed gives a false emphasis, for Aristotle's point is that if the part removed is equal to what remains, the thing is destroyed, not mutilated.

531. 427,7. Because, that is, if even one unit is subtracted from a number, the number loses 'its substance and form'. Five, e.g., is not a mutilated six, but an entirely new number.

532. 427,8-9. That is, if they are to be subjects of mutilation. The reference is to 1024a12, where Aristotle says that only quantities that are wholes can be called 'mutilated'; this, Alexander thinks, implies that they must also have dissimilar parts.

533. 427,10. The point, of course, is not that the things have position but that their parts do, as he makes clear in what follows. Bonitz points out that position should not in fact be introduced as a new requirement, since it has already been stated that to be mutilated a thing must be a whole, and a whole is something whose parts have position (1024a2).

534. 427,28. Aristotle's *ta kuria tês ousias* (1024a24) are not the intrinsic principles, matter and form, that determine a thing's essence, but the physical parts necessary to guarantee the integrity of a *material* whole. Alexander adds *eidous* (form), perhaps with reference to the external form or shape of the thing.

535. 427,37-9. Aristotle says only, 'for this reason bald men are not mutilated'; he does not state the reason explicitly, but it must be, as Alexander says, that hair is naturally capable of being regenerated, for if baldness were the permanent loss of an extremity it would be, by definition, mutilation. But Alexander speaks of hair as being 'removed' (*aphairoumenai*), not 'lost' or 'fallen out', the description we would expect for baldness, so that he may be thinking of a man whose head has been shaven rather than one who is naturally bald. (Apostle in fact translates Aristotle's *hoi phalakroi* as 'people with shaven heads'.) Thus the evidence that hair is naturally capable of regeneration, which Aristotle does not supply, would be the fact that it does grow out again after the head has been shaved, for Alexander apparently does not believe that this happens in the case of real baldness; cf. 428,2, the bald man does not recover his hair. If *tou holou* is correct, it refers to the head, the whole from which a part – the hair – is removed. But the sequence suggests that the reading should be *holai*: 'if the hair is removed completely', as it would be by shaving; cf. Aristotle's *aphairethen holon*, imitated at 37 above, *aphairethenta hola*.

536. 428,5. That is, the remaining tissue replaces the excised portion.

537. 428,6-7. These lines make no sense if *aphaireithesai* and *aphairountai* both mean 'are removed', but perhaps *hai trikhes aphaireithesai* can be understood as *tas trikhas aphairethentes*: 'if people have been *deprived* of their hair', whether by natural causes or in some other way, 'the hair can grow back again, at least in some cases if not in all', to provide for cases of temporary baldness resulting from illness, when the hair may or may not return; 'or even in all cases when it has been *removed*', this last being emphasised to contrast the case of induced baldness, in which the hair normally grows back, with baldness from natural causes, in which there is either no restoration (2 above) or an uncertain one.

538. 428,11. There is no single English word that conveys the meanings of *genos* given by Aristotle, especially since the meaning of philosophic interest, *genos* in the logical sense of 'genus', has, in English, no obvious connection with the notion of generation that is the basis for the first two meanings. The second of these, according to which the progenitor of a family or tribe is called a *genos*, is itself a most unusual use of the term, as Alexander's *genos ti* (17) suggests.

539. 428,30. Reading *katêgoreitai* for *kai ta hexês*.

540. 428,30-1. There is a lacuna in the text at this point; the words supplied are taken from the Latin version of S.

541. 428,32. Aristotle says only, 'as plane is the genus of plane figure' (1024a36). Alexander's point is that the genus is 'plane *figure*', since plane by itself is a differentia.

542. 429,25-7. The obscure point seems to be that if a god, e.g., impregnated a woman, as in certain myths, the descendants of that union would not be named after the god because he was not 'of the same kind', i.e. human, as those who come after him.

543. 429,32, *hôs hupokeimenou*. Here the term has the technical sense of that which underlies and supports; *hôs* indicates that this is true of the genus only by analogy. Fully expressed, the statement would be: 'The differentiae belong to the genus as a subject in a way similar to that in which matter underlies and supports the form.'

544. 429,32. Again, the analogy is incompletely expressed: 'as matter too is made to exist in a particular way by its union with form.' The point is that in themselves both matter and genus are form-less: as matter actually exists as a 'this something' only through its union with a particular form, so the genus 'animal' is not the species, man or horse, until it has been contracted by the addition of the *differentia specifica*.

545. 429,33-5. Alexander pushes the analogy too far. His point is that Aristotle calls the differentiae 'qualities', and qualities, as accidents, require a subject which supports them and in which they inhere. But the differentiae are not *in* the genus in this way, as he himself has stated above (396,8).

546. 429,35. The syntax of the sentence breaks down. The *epei-* clause attempts to recapitulate the two preceding clauses as a prelude to stating the conclusion.

547. 429,38, *eidei*. This should, it seems, be *genei*, as Hayduck suggests in his apparatus, but without indicating textual variants.

548. 430,4. i.e. matter that is actually united to and is thus the substrate of a form, in contrast either to prime matter, only the potential recipient of a form, or to a remote matter such as water.

549. 430,5-9. On the terminology and doctrine see nn. 104 and 487.

550. 430,17ff. In giving matter and form as an example of things that are 'other in genus', Aristotle seems merely to be naming two principles that are as different as possible, for the notion of 'genus' in the proper sense is simply inapplicable in this case (see however 37 below). But Alexander thinks that the example illustrates how two things differ *in their substrate*, and is thus led to give a contorted explanation that he seems finally to repudiate (25ff. below). By matter, he says, Aristotle means 'body', i.e. quantified matter that has already acquired a form, a most unlikely interpretation but one forced on him because matter in itself *has* no substrate (cf. 29-30 below). His further assertion that by 'form' Aristotle means the definition is again dictated by the necessity of finding a substrate for form that can be contrasted with the substrate of matter, although as 'matter and form' are usually understood, the substrate or subject of form *is* precisely matter; but if matter is to be understood as body or quantified matter, as he contends, 'form' should be, not the definition or essence, but the principle that constitutes a particular *kind* of body, e.g. one of the elements or the body of an animal.

551. 430,20-2. The tentative form of this statement seems to indicate that Alexander is uncertain of his interpretation, and in fact, in the text to which he refers (1024a4-6), it is not *both* parts of the definition that are the substrate, but only the genus, which is analogously matter with respect to form; cf. his own explanation of that text, 429,32 above, and what he says at 29 below.

552. 430,24. That is, as 'other in genus' is defined as things with different substrates, in contrast to the explanation next offered. This latter is introduced as a second interpretation (*eti*, again), but it amounts in fact to a rejection of the first.

553. 430,26. When matter and form are united in the composite, form is in the matter, as he said at 421,24-6 above; but here he means that when the two principles are taken separately, they are totally distinct.

554. 430,29-30. 'Matter in the primary sense' is prime matter, at which the process of resolving material things into their ultimate material principle comes to a halt, for, as Aristotle argues in Book 2, the causes would proceed upward *ad infinitum* if prime matter were itself supported by a substrate. In the present text, Alexander also concedes the point

made in n. 550 that form as such, i.e. as a principle of being conceived as distinct from matter, has no substrate; he is therefore no longer thinking of form as essence, as in his first explanation.

555. 430,34-5. Since this is the same criterion of generic difference that Aristotle gave in the first case, it seems that this is not a separate meaning of 'other in genus', as Alexander thinks, but one included under the first definition.

556. 430,36-8. Adopting Bonitz's conjecture *oud' eti* for *ouketi*, since this clause seems to be a continuation of the one preceding, which should therefore not be punctuated by a full stop. But form and matter are not 'under' substance as inferiors are under a common genus nor as subordinate genera are under a higher genus, as this statement seems to imply. It is however true that as principles of substantial being they, like substance itself, are not predicated of a subject, so that each of them can lay some claim to the title *ousia*.

557. 430,40. In the discussion of falsity in things, a *logos* is a 'statement' in the proper sense, i.e. a proposition asserting or denying that a thing exists. But in the subsequent discussion of falsity *en tois logois*, a *logos* is a verbal formula, either in the formal sense of the definition that manifests the essence, or in the looser sense of a merely descriptive formula. On this point, see n. 578.

558. 431,2. Cf. *Metaph*. 6.4, 1027b25ff: 'falsity and truth are not in things ... but in thought ... the combination (*sumplokê*) and separation (*diairesis*) are in thought and not in things.' The intellect 'combines or separates' subject and predicate, asserting or denying their unity by the verb 'is', which in such predications is not a mere copulative but has existential force; see 371,21-9 and n. 159 and 161. Thus for Aristotle falsity in the epistemological sense – that is, error – exists formally in the judgement that the intellect makes about things; see 436,9-10 below.

559. 431,4-5. A paraphrase of 1024b26, *tên ap'autôn phantasian mê ontos einai*, where *phantasian* can be either the *appearance* that the object projects, as the stick under water appears to be broken, or the resultant *imagination* that this appearance creates in the observer. Thus Ross translates Aristotle's text, 'because the appearance which results from them is that of something that does not exist', but Kirwan, 'from their giving rise to an imagination of something that is not'. The two notions are of course complementary, for the image that I form of the object is dictated by the way in which it presents itself to me. But Alexander's interpretation of this text ('the appearance that results from them is false because they appear to be what they are not', 432,12) favours our taking *phantasia* as 'appearance', especially since he is now arguing that falsity is in the thing, whereas a false imagination is in the observer; see n. 575.

560. 431,5, *to mê huparkhon pseudos en pragmasin*, lit. 'the non-existent falsity in things', but the explanation that follows makes it clear that this means the falsity that is their non-existence, in contrast to the falsity that occurs when we speak about such things.

561. 431,6. Aristotle's description of the first way in which a thing is false does not refer explicitly to the statement about it: 'because it is not combined or cannot be combined, as the diagonal is said to be commensurable or you are said to be sitting' (1024a18-20). But since, as Alexander notes (23 below), the verbs *sunkeisthai* and *suntethênai* obviously refer to the composition of subject and predicate in a proposition, he explains this first sense of falsity in things by contrasting it at once with the falsity found in *statements* about things. Thus a certain confusion results, because his formal treatment of 'falsity in statement' begins only at 433,9.

562. 431,11-12. Reading *tôi* for *tc* before *einai* and *huparkhein*. *tôi* seems in fact to be the preferred reading in line 12, and the two cases are parallel.

563. 431,15. Taking *alêthes* adverbially, although it could well be a scribal error for *alêthôs*. It is meaningless to say that a thing is not false so long as it is true, and moreover the argument is that truth in things consists in their existence.

564. 431,17-18. The explanation is disingenuous. If I say, e.g., 'the centaur exists', the *reason why* the statement is false is indeed the fact that the centaur is a non-being, but the falsity itself lies in the 'composition' of subject and predicate, for which the statement alone, or the intellect that makes the composition, is responsible.

565. 431,20-3. Alexander's captious use of *pragma* in these lines amounts almost to a pun

on the word: 'falsity as a thing is in the statement, but falsity is in the thing.' In the phrase *hôs pragma* (21), *pragma* has, as often, the sense of an actual existent, so that the meaning is: 'the reality of falsity is in the way we speak about things', that is, by affirming or denying something of them, 'but falsity also belongs to the thing about which we make the statement', because *it* either is or is not what we attribute to it. This is therefore another attempt to explain how things can be false, and thus to explain away an apparent contradiction in Aristotle's text.

566. 432,1, *tauta hôs pragmati pseudê*, lit. 'these things are false in the sense that they [belong to, or, are in] the thing'. The whole sentence is an awkward way of saying that *things* are false if they are non-existent. The cryptic *hôs pragmati* might be a stylistic counterpoint to *hôs pragma* (431,21), but more probably reflects *tôi pragmati pseudos* (431,23), 'falsity [belonging to] the thing'.

567. 432,1-2. That is, the fact that the centaur is false, i.e. non-existent, insures that falsity is present in the very act of combining the subject, 'centaur', and the predicate, 'is'.

568. 432,4-5. There is a lacuna in the text between *sunthesin* and *ginomenê*; the words supplied are from the Latin version of S. The point of the statement is that the term 'existence' (*huparxis*) can be applied properly only to a thing; if that thing is said 'to exist' in a proposition, this analogical existence consists in the union of the subject, as matter, with the predicate, as form. On *huparxis*, see n. 161.

569. 432,8-10. This is in effect a re-statement of the paradox of Plato's *Sophist*, for to say that false things *are* is to say that non-being exists, since falsity in things has been defined as their non-existence. It is possible to speak of the ontological *truth* in things because truth is consequent on being, a point that Alexander has made at some length in his commentary on Book 2 (148,10ff.); but the squared circle and other such anomalies are simply not *pragmata*.

The translation omits lines 10-11, 'But among things there are also some that are either not the kind of things that they are or that are not'; they do not appear in the version of S, and Hayduck suggests that they should probably be deleted. They seem to be a clumsy attempt to provide a transition to the next type of falsity.

570. 432,11-13. Stated thus, the contrast is between, e.g. pigment on a canvas, which is a physical reality but one that presents itself to me not as what it is but as a lion, and the lion that terrifies me in a dream, a phantom that has no physical reality. But because Aristotle has said that appearances of both kinds are *onta*, beings, Alexander at first maintains that the dream has a kind of physical reality, although ultimately he equates dream-images with things that do not exist (433,8).

571. 432,23. A reference to 1024b21-2, *esti men onta, pephuke mentoi phainesthai*, 'they are beings, but their nature is such that they appear', etc.

572. 432,23-4. This explanation is ingenious if not convincing. The lion in the painting is already an illusion or deception because the appearance (*phantasia*) under which it presents itself to us is not 'the kind of thing that it is', i.e. a painted, two-dimensional surface. We in turn are deceived because the imagination (*phantasia*) that we form replicates the illusion in the picture, so that falsity is on the side of the thing. But in fact, we are not deceived in imagining that the painted lion *looks like* an animal, but only if we go on to make the 'composition' to which Alexander refers: 'this *is* a lion.'

573. 433,1-2. The text is corrupt at this point. Hayduck indicates that the corruption extends from *dio* (1) to *onta ge* (4), but the lines can be made to yield an acceptable sense by excising the meaningless *dio ... mê ontos*, inserting *men* after *to* (2), and changing *kai toiauta* to *toiauta de*. By this reading, Alexander is distinguishing the *actions* which the *phantasmata* perform, which do not exist, from the *phantasmata* themselves, which exist as neurological movements in the brain.

574. 433,4-5. On the Epicurean term *enkataleimma* and its use by Alexander, see R. Todd, 'Lexicographical notes on Alexander of Aphrodisias' philosophical terminology' (*Glotta* 52, 1974, 207-15), 210-11. The psychological explanation of imagination suggested by the present text becomes clearer from a passage in Alexander's *De Anima*: 'the sense organ that is activated in this way by the soul's power seems to preserve ... some trace of the movement [engendered] by the perceptible object even though the latter is no longer present. Those at

least who have perceived intensely bright objects retain in their eyes certain *enkataleimmata*, residual traces, of the movement from the objects, although these objects are no longer present' (62,22-63,4). Thus there seems to be both a physical and a psychological basis for the *phantasmata*: remnants of perception in the sense organs, and imagination, and these stimulate the brain to produce the *kinêmata* (movements) that occur during dreams (432,17-19).

575. 433,6. This remark, which has no obvious connection either with what precedes or what follows, is best taken as parenthetical. According to the explanation just given, falsity is in the *phantasmata*, which portray phantom agents performing unreal actions. But the *phantasmata* are in the dreamer, not in things outside him, and this fact might seem to compromise the thesis that falsity exists in things themselves.

576. 433,6-7. After quoting Aristotle's text accurately (*mê hoia esti*), Alexander then says, *hoia mê esti*, but the change in word order does not affect the sense and is probably inadvertent.

577. 433,10. This qualification is to provide for the fact that, as he says subsequently, there can be a *true* statement about non-existent things.

578. 433,15. At 10 above, Alexander glossed Aristotle's *hêi pseudês*, *qua* false, by *katho*, inasmuch as, but found that difficult to explain. Now he suggests that *hêi* (*qua*) be read as *ê* (or); he thinks that this reading extends the idea of falsity to statements of all types, not only to those about things that are not, as in the other version.

579. 433,25-6. Can *logos* be translated as 'statement' in Aristotle's text and in Alexander's subsequent commentary? The question arises because the term is being used, as often, of the verbal *formula* that describes a thing; initially, this is the definition proper, and this *logos* as formula is sometimes thought to be simply the verbal complex that functions as predicate in the definition, e.g. 'a figure enclosed by three straight lines' or 'rational mortal animal'. But such formulae are, in themselves, neither true nor false, for they do not 'signify', i.e. assert anything; thus Aristotle says, 'the false statement, *qua* false', to indicate that the formula takes on falsity only when predicated of a subject to which it does not belong. Hence Guthrie rightly says, with reference to Aristotle's present text, 'The meaning of *logos* here emerges from the context. It has been understood as a single word or term, but clearly means a description or statement of what a thing is' (*A History of Greek Philosophy* III, Cambridge 1969, 210). Alexander also understands *logos* in this sense as a statement of what the thing defined *is*. Commenting on Aristotle's definition of definition ('A definition is a *logos* signifying the "what it was to be," ' *Topics* 1.5, 101b39), he says: 'A definition is a *logos* that manifests what it is for the thing of which it is the definition *to be* ... The word "to be" is not a pointless or superfluous addition, but a necessary one ... The word "was" is not adequate by itself, as some people think, of whom Antisthenes seems to have been the first ..., but it is with good reason that "to be" is added. And the definition [that Aristotle gives of definition] is equivalent to, "a statement that manifests the substance of a thing, and in virtue of which the thing has its being" ' (*in Top*. 1, 42,3-27).

580. 434,1. Reading *hoti mê ontos estin* (because it is of something non-existent) for *hoti mê éstin hêi esti toutou* (because it does not exist inasmuch as it is of this thing). Hayduck, while suggesting that the first reading is probable, prints the second, which makes the definition itself the non-existent, clearly not the conclusion that the argument intends nor that the sequel implies.

581. 434,4. There is a textual problem at this point; the words 'by three straight lines' are supplied from S. Because of *hupo mias grammês* Bonitz thinks the statement should be amplified: 'but a circle is a figure enclosed by one line.'

582. 434,11-12. 'An animal that is half man, half bull' would be a true statement of the centaur if that creature existed; but since it does not, this and any other description of it is a 'false statement', as being the statement of something non-existent.

583. 434,12-13. Hayduck does not print this sentence as a parenthesis, but unless it is taken as such the following sentence seems to contradict it. The point is that the multiple accidental statements or descriptions that can apply to a thing must not be confused with its definition, which, since it manifests the essence, is unique for each thing.

584. 434,19-20, *oukh haplôs hippou logos*, etc. The translation takes *oukh*, despite its

position, as qualifying the whole clause, i.e. 'there is absolutely no way in which "rational mortal animal" can be the statement of horse.'

585. 434,26. Reading *oikeiôs* for *oikeios* (A and S).

586. 434,25-435,16. In his commentary on the *Topics*, Alexander gives a similar but longer account of Antisthenes' argument (79,7-29). Both texts are cited by A. Brancacci, *Oikeios Logos, La filosofia del linguaggio di Antistene*, Naples 1990, 244 and 251.

587. 435,18, *pollakhôs*, lit. 'many times'. Alexander piles on these adverbs without regard to precise meaning; there seems to be no real difference between *rhaista* and *ek prokheirou*, and it is difficult to imagine that even a dullard would define a horse as a two-footed animal even once, let alone 'many times'.

588. 435,23. 'This thing' is also horse, so that he is saying, 'the statement that is not true about horse is a false statement about horse'. This painful redundancy underlines the point made in n. 579: Alexander conceives the *logos* that is definition as a complete statement, and apparently does not consider the possibility of explaining the case in question by saying: 'the predicate-formula "two-footed land animal" is a true description of man but not of horse.'

589. 436,9-10. A reprise of what he said at the beginning of this chapter: 'falsity seems to be in what is said and thought' (431,21), but now primacy is assigned to the activity of the intellect, which makes its own internal judgement prior to any external utterance.

590. 436,23, *hoi phuletikôs phusêsantes hautous*, a quotation from Aristotle's *On Sophistical Refutations*, which Poste explains in light of Xenophon, *Memorabilia* 3.3: 'This seems an allusion to the choral exhibitions at Athens. Each tribe (*phulê*) ... furnished a chorus, and was emulous of its reputation, which depended on ... the size and strength of the choristers, as well as on their vocal powers' (*Aristotle on Fallacies*, London 1866, 97). The commentary on the *Sophistici Elenchi* wrongly ascribed to Alexander explains the 'puffing up' as the use of padded clothes (8,7-8).

591. 446,26. The passages cited are *Hippias Minor* 366-8 and 373-4. On the arguments, see J. Jantzen, *Platon, Hippias Minor oder Der Falsche Wahre*, Weinheim 1989.

592. 437,16. Alexander is thinking of *NE* 7.8, where Aristotle compares the profligate with the incontinent man. He describes the incontinent man as one who is overcome by passion to the extent that he fails to act in accordance with right reason, but not to the extent that he believes he ought to pursue bodily pleasures without restraint. 'This man', he says, 'is better than the profligate man, and is not absolutely depraved, for the best thing [in him], the principle, is preserved' (1151a24-6).

593. 437,19. 'Accident' has already been given considerable attention in Book 5, especially in the treatment of accidental unity and being in chapters 6 and 7. As Alexander's introduction to the present chapter implies, Aristotle does not intend to discuss all the meanings of accident, but to distinguish two senses in which accident, defined as *to huparkhon*, that which belongs to another as an attribute, is understood: (1) as what belongs only coincidentally and by chance; (2) as what belongs in virtue of the thing's essence, i.e. an essential accident or property.

594. 437,25. Obviously not true, since it was the digging that turned up the treasure, but as he goes on to say, the digging is a *cause* only by chance. Alexander uses this example again in his *De Fato* (Bruns 172,25ff.); see Sharples' commentary on that text (*Alexander of Aphrodisias on Fate*, London 1983, 131-2).

595. 437,26. This again is inaccurate, because it is clear, *post factum*, that without the digging there would have been no treasure. But by an *aition ex anankês* Alexander means a cause whose effect follows of necessity, so that the nexus between cause and effect is a necessary one even prior to the event.

596. 437,32-438,12. This text, which Hayduck prints as one vast sentence, begins by paraphrasing Aristotle, 1025a21-2: 'since there is something that is an attribute and something to which it belongs, and some of these attributes [belong] at a particular place and time.' After a compressed commentary on this statement, Alexander continues with Aristotle's text at 438,6: 'whatever belongs [to a subject], but not because it was this or now or here, will be an accident' (a23-4). But he omits the words *sumbebêkos estai*, so that the initial *epei*-clause is left without the expected apodosis, and the whole sentence without an independent clause.

The translation breaks the sentence into more manageable units, and at 438,6 supplies *sumbebêkos esti*, 'an accident is'.

597. 438,6, *all' en merei*. This might mean that all the planets rise and set at different times according to the season of the year, or that the individual planets rise and set at their own times, as e.g. Venus and four other planets appear in the eastern sky prior to the rising of the sun.

598. 438,6-7, *ê haplôs ... tôi merei*. There seems clearly to be a textual problem here, but Hayduck's apparatus offers scant help. The translation inserts *ê* before *entautha* (cf. 1025a23, *ê nun ê entautha*), and adopts LF's *hoti en* for *hoion en*, so that *entautha* explicates the preceding *pêi*. But the whole would make better sense if we could take *ê pêi* as meaning 'or [qualified] in some way', and read thereafter, *ê kata khronon, hoion nun, ê kata topon, hoion entautha*, 'whether with respect to time, e.g. "now", or to place, e.g. "here".'

599. 438,7-8, *hôrismenên* (definite) is Aristotle's term, to which Alexander adds *proêgoumenên* (antecedent). *kai* should perhaps be taken as epexegetic, so that the sense would be, 'an antecedent, i.e. a definite, cause'. Digging in the field was an action that *preceded* the finding of the treasure, but it was not an antecedent *cause* in the sense that the man knew beforehand that it would produce this result; as Alexander subsequently says, the causes of accidental events do not always exist, that is, they exist as causes only at the moment when the unexpected effect 'supervenes' on them (see n. 606). The term *proêgoumenê aitia* occurs several times in the *De Fato*, most notably in chapter 8 (Bruns 172,17-174,28), where Sharples translates, 'primary cause'; see his commentary on this point (op. cit. 132-3) and his fuller treatment in 'Responsibility, chance and not-being: Alexander of Aphrodisias *mantissa* 169-172', *Bulletin of the Institute of Classical Studies* 22, 1975, 37-64, 49.

600. 438,8-9. It is not clear what Aristotle himself means by *todi*, lit. 'this particular thing'. Ross and Apostle understand the *subject* to which an attribute belongs, whereas Kirwan and the French translators take it as referring to the *attribute* which belongs. Alexander, however, thinks there is question of the *cause* of these attributes, and for him the important word is *ên* (was), since it raises the problem of the existence of accidental causes.

601. 438,9-12. This can be understood only in light of the examples that follow. An errant blow of the hammer causes a finger to swell up; thus a cause of the swelling exists at the moment of the impact. Similarly, natural causes operated to bring the sun to a position in the sky from which its heat is perceived as being more intense. Thus neither the swelling nor the heat is *apo tukhês*, a chance or random event, since each has 'an antecedent and definite cause'. But they 'become accidents' when their causes no longer exist, i.e. have ceased to function, although as accidents they are fundamentally different from the case of the storm-tossed mariner, whose landfall is purely a matter of chance.

602. 438,12-13. The example is given more clearly in the expanded version of LF: 'for if the finger becomes swollen because of a chance blow, the blow is the cause of its swelling, and the swelling was not by chance.'

603. 438,15-17. The point of this obscure bit of textual exegesis seems to be that *êdê*, therefore, makes it appear that Aristotle is only now reaching this conclusion, when in fact the conclusion is implied in what he has already said. The word *ouden* that Alexander proposes as an alternate for *oude de* is in fact in the received text of *Metaphysics* (*oude de aition hôrismenon ouden*), but is not in the text as he quotes it.

604. 438,17, *houtôs*. i.e. in the sense that there was no definite cause for what happened.

605. 438,20, *proêgoumenôs*. In the *De Fato*, Alexander speaks of a *proêgoumenon telos* (Bruns 173,3). Sharples translates, 'Primary end', and in his commentary points out that the regular sense of the adverb *proêgoumenôs* is 'primary' as opposed to 'secondary' or 'accidental'. But he adds, 'It is true that at ... 173,3 the "primary end" could be interpreted as one *envisaged in advance* ...' (133), and this seems clearly to be the sense in which Alexander uses the adverb here and in the next line, as his emphasis of *toutou kharin* indicates. (Contrast *proêgoumenôs*, 'principally', at 35 below and at 389,23.) Thus the concept of 'cause' is expanded to include the *intention* of the agent, and the accidental becomes not only that which happens without a definite antecedent cause, but also what occurs without the agent's intention, or even in contravention of his purpose.

606. 438,24. *to gignomenon* and *to ginomenon*, lit. 'the thing coming to be', is what the man

hoped to accomplish by putting to sea; *to heteron ginomenon* is the storm that intervened to frustrate his purpose; the *auto ho epigegone* is his arrival at Aegina.

For the notion that the result 'supervenes' (*epigignetai*), that is, suddenly appears as the unforeseen consequence of an accidental cause, cf. *De Fato* (Bruns) 172,17-19: 'those things are said to come about by luck and chance ... that supervene on antecedent causes productive of other effects.' The man's intention to reach a certain destination, and his boarding ship to carry out his intention, would be causes in the proper sense if the expected result had followed. The storm that interfered does in fact turn out to be the cause of his reaching Aegina, but a cause that could operate only in virtue of 'antecedent causes productive of another effect' (just as digging would not have turned up a treasure if the man had not set out to plant a tree), and that is, moreover, 'a chance cause, and this is indefinite', because Aegina was only one of many ports to which the storm might have driven him.

607. 438,27-9. Aristotle now introduces a meaning of 'accident' that, as Bonitz remarks, is almost the exact opposite of the preceding sense. Accidents of the kind now described are what Aristotle elsewhere (e.g. *Metaph*. 3.1, 995b20) calls '*sumbebêkota kath' hauta, per se* accidents', that is, properties. Commenting on that text, Alexander says: 'By *per se* accidents he means [attributes] that belong [to the subject] in virtue of itself ... *Per se* attributes in the primary sense are those included in the definition .... But by *per se* accidents he also means those that are inseparable and proper and nearly essential.' As examples he mentions the case of triangle given in the present text, and the fact that a number is either odd or even, and that every being is one (*in Metaph*. 2, 176,19-30).

608. 438,29. Reading *apodeixeis* for *apodoseis*, as Hayduck suggests; cf. 439,6, and *An. Post*. 1.6, 75a28-31.

609. 438,34-439,1. Alexander makes an issue of what seems to be a minor point: the fact that Aristotle says only that it is *possible* that *per se* attributes should be eternal, when in fact they clearly *are* such. He offers two explanations: (1) The question of essential and accidental attributes is not the primary topic here; in saying *nun* (now) he may have in mind that this matter is dealt with at length in cc. 2 and 3 of the following book. (2) It is also possible that certain *per se* attributes should *not* be eternal, sc. if the subject to which they belong is not. This extraordinary suggestion depends on taking *aïdios* in its literal sense of 'eternal, never-ending' rather than as 'invariable' (Kirwan), although, as 439,1-3 shows, Alexander is fully aware that in the present context *aïdios* means what is universal and necessary; cf. *An. Post*. 1.8, 75b21-30. Moreover, even though an entire species should cease to exist, its *essence* remains eternal, hence also the attributes that flow from the essence, just as the properties of a triangle are forever necessary whether or not triangles actually exist.

610. 439,11, *kath' hauta*. The received text of *Metaphysics* has *kath' hauto* at 1025a31, but *kath' hauta* also occurs in the paraphrase at 438,27 above.

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This bibliography consists for the most part of works cited in the footnotes; for a comprehensive Alexander-bibliography the reader is referred to R.W. Sharples, 'Alexander of Aphrodisias: scholasticism and innovation', *Aufstieg und Niedergang der römischen Welt*, vol. 36.2, Berlin 1897, 1176-1243 (bibliography, 1226-1243). For a more recent catalogue of Alexander's works, especially in their Arabic versions, see Richard Goulet and Maroun Aouad, 'Alexandros d'Aphrodisias', *Dictionnaire des Philosophes Antiques* 1, Paris 1989, 125-39. The third volume of Paul Moraux, *Der Aristotelismus bei den Griechen*, unfinished at the time of the author's death in 1985 and now being completed by his colleagues, will be devoted entirely to Alexander. The extensive bibliography in *Aristotle Transformed*, ed. Richard Sorabji, should be consulted for contemporary Aristotelian studies, with special reference to the work of Aristotle's ancient commentators.

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Appendix
The Commentators*

The 15,000 pages of the Ancient Greek Commentaries on Aristotle are the largest corpus of Ancient Greek philosophy that has not been translated into English or other European languages. The standard edition (*Commentaria in Aristotelem Graeca*, or *CAG*) was produced by Hermann Diels as general editor under the auspices of the Prussian Academy in Berlin. Arrangements have now been made to translate at least a large proportion of this corpus, along with some other Greek and Latin commentaries not included in the Berlin edition, and some closely related non-commentary works by the commentators.

The works are not just commentaries on Aristotle, although they are invaluable in that capacity too. One of the ways of doing philosophy between A.D. 200 and 600, when the most important items were produced, was by writing commentaries. The works therefore represent the thought of the Peripatetic and Neoplatonist schools, as well as expounding Aristotle. Furthermore, they embed fragments from all periods of Ancient Greek philosophical thought: this is how many of the Presocratic fragments were assembled, for example. Thus they provide a panorama of every period of Ancient Greek philosophy.

The philosophy of the period from A.D. 200 to 600 has not yet been intensively explored by philosophers in English-speaking countries, yet it is full of interest for physics, metaphysics, logic, psychology, ethics and religion. The contrast with the study of the Presocratics is striking. Initially the incomplete Presocratic fragments might well have seemed less promising, but their interest is now widely known, thanks to the philological and philosophical effort that has been concentrated upon them. The incomparably vaster corpus which preserved so many of those fragments offers at least as much interest, but is still relatively little known.

The commentaries represent a missing link in the history of philosophy: the Latin-speaking Middle Ages obtained their knowledge of Aristotle at least partly through the medium of the commentaries. Without an appreciation of this, mediaeval interpretations of Aristotle will not be understood. Again, the ancient commentaries are the unsuspected source of ideas which have been thought, wrongly, to originate in the later mediaeval period. It has been supposed, for example, the Bonaventure in the thirteenth century invented the ingenious arguments based on the concept of infinity which attempt to prove the Christian view that the universe had a beginning. In fact, Bonaventure is merely repeating arguments devised

* Reprinted from the Editor's General Introduction to the series in Christian Wildberg, *Philoponus Against Aristotle on the Eternity of the World*, London and Ithaca, N.Y., 1987.

by the commentator Philoponus 700 years earlier and preserved in the meantime by the Arabs. Bonaventure even uses Philoponus' original examples. Again, the introduction of impetus theory into dynamics, which has been called a scientific revolution, has been held to be an independent invention of the Latin West, even if it was earlier discovered by the Arabs or their predecessors. But recent work has traced a plausible route by which it could have passed from Philoponus, via the Arabs, to the West.

The new availability of the commentaries in the sixteenth century, thanks to printing and to fresh Latin translations, helped to fuel the Renaissance break from Aristotelian science. For the commentators record not only Aristotle's theories, but also rival ones, while Philoponus as a Christian devises rival theories of his own and accordingly is mentioned in Galileo's early works more frequently than Plato.[1]

It is not only for their philosophy that the works are of interest. Historians will find information about the history of schools, their methods of teaching and writing and the practices of an oral tradition.[2] Linguists will find the indexes and translations an aid for studying the development of word meanings, almost wholly uncharted in Liddell and Scott's *Lexicon*, and for checking shifts in grammatical usage.

Given the wide range of interests to which the volumes will appeal, the aim is to produce readable translations, and to avoid so far as possible presupposing any knowledge of Greek. Notes will explain points of meaning, give cross-references to other works, and suggest alternative interpretations of the text where the translator does not have a clear preference. The introduction to each volume will include an explanation why the work was chosen for translation: none will be chosen simply because it is there. Two of the Greek texts are currently being re-edited – those of Simplicius *in Physica* and *in de Caelo* – and new readings will be exploited by

1 See Fritz Zimmermann, 'Philoponus' impetus theory in the Arabic tradition'; Charles Schmitt, 'Philoponus' commentary on Aristotle's *Physics* in the sixteenth century', and Richard Sorabji, 'John Philoponus', in Richard Sorabji (ed.), *Philoponus and the Rejection of Aristotelian Science* (London and Ithaca, N.Y. 1987).

2 See e.g. Karl Praechter, 'Die griechischen Aristoteleskommentare', *Byzantinische Zeitschrift* 18 (1909), 516-38 (translated into English in R. Sorabji (ed.), *Aristotle Transformed: the ancient commentators and their influence* (London and Ithaca, N.Y. 1990); M. Plezia, *de Commentariis Isagogicis* (Cracow 1947); M. Richard, *'Apo Phônês', Byzantion* 20 (1950), 191-222; É. Evrard, *L'Ecole d'Olympiodore et la composition du commentaire à la physique de Jean Philopon*, Diss. (Liège 1957); L.G. Westerink, *Anonymous Prolegomena to Platonic Philosophy* (Amsterdam 1962) (new revised edition, translated into French, Collection Budé; part of the revised introduction, in English, is included in *Aristotle Transformed*); A.-J. Festugière, 'Modes de composition des commentaires de Proclus', *Museum Helveticum* 20 (1963), 77-100, repr. in his *Études* (1971), 551-74; P. Hadot, 'Les divisions des parties de la philosophie dans l'antiquité', *Museum Helveticum* 36 (1979), 201-23; I. Hadot, 'La division néoplatonicienne des écrits d'Aristote', in J. Wiesner (ed.), *Aristoteles Werk und Wirkung* (Paul Moraux gewidmet), vol. 2 (Berlin 1986); I. Hadot, 'Les introductions aux commentaires exégétiques chez les auteurs néoplatoniciens et les auteurs chrétiens', in M. Tardieu (ed.), *Les règles de l'interprétation* (Paris 1987), 99-119. These topics are treated, and a bibliography supplied, in *Aristotle Transformed*.

translators as they become available. Each volume will also contain a list of proposed emendations to the standard text. Indexes will be of more uniform extent as between volumes than is the case with the Berlin edition, and there will be three of them: an English-Greek glossary, a Greek-English index, and a subject index.

The commentaries fall into three main groups. The first group is by authors in the Aristotelian tradition up to the fourth century A.D. This includes the earliest extant commentary, that by Aspasius in the first half of the second century A.D. on the *Nicomachean Ethics*. The anonymous commentary on Books 2, 3, 4 and 5 of the *Nicomachean Ethics*, in *CAG* vol. 20, is derived from Adrastus, a generation later.[3] The commentaries by Alexander of Aphrodisias (appointed to his chair between A.D. 198 and 209) represent the fullest flowering of the Aristotelian tradition. To his successors Alexander was The Commentator *par excellence*. To give but one example (not from a commentary) of his skill at defending and elaborating Aristotle's views, one might refer to his defence of Aristotle's claim that space is finite against the objection that an edge of space is conceptually problematic.[4] Themistius (*fl.* late 340s to 384 or 385) saw himself as the inventor of paraphrase, wrongly thinking that the job of commentary was completed.[5] In fact, the Neoplatonists were to introduce new dimensions into commentary. Themistius' own relation to the Neoplatonist as opposed to the Aristotelian tradition is a matter of controversy,[6] but it would be agreed that his commentaries show far less bias than the full-blown Neoplatonist ones. They are also far more informative than the designation 'paraphrase' might suggest, and it has been estimated that Philoponus' *Physics* commentary draws silently on Themistius six hundred times.[7] The pseudo-Alexandrian commentary on *Metaphysics* 6-14, of unknown

3 Anthony Kenny, *The Aristotelian Ethics* (Oxford 1978), 37, n. 3: Paul Moraux, *Der Aristotelismus bei den Griechen*, vol. 2 (Berlin 1984), 323-30.

4 Alexander, *Quaestiones* 3.12, discussed in my *Matter, Space and Motion* (London and Ithaca, N.Y. 1988). For Alexander see R.W. Sharples, 'Alexander of Aphrodisias: scholasticism and innovation', in W. Haase (ed.), *Aufstieg und Niedergang der römischen Welt*, part 2 *Principat*, vol. 36.2, *Philosophie und Wissenschaften* (1987).

5 Themistius *in An. Post.* 1,2-12. See H.J. Blumenthal, 'Photius on Themistius (Cod. 74): did Themistius write commentaries on Aristotle?', *Hermes* 107 (1979), 168-82.

6 For different views, see H.J. Blumenthal, 'Themistius, the last Peripatetic commentator on Aristotle?', in Glen W. Bowersock, Walter Burkert, Michael C.J. Putnam, *Arktouros*, Hellenic Studies Presented to Bernard M.W. Knox (Berlin and N.Y., 1979), 391-400; E.P. Mahoney, 'Themistius and the agent intellect in James of Viterbo and other thirteenth-century philosophers: (Saint Thomas Aquinas, Siger of Brabant and Henry Bate)', *Augustiniana* 23 (1973), 422-67, at 428-31; id., 'Neoplatonism, the Greek commentators and Renaissance Aristotelianism', in D.J. O'Meara (ed.), *Neoplatonism and Christian Thought* (Albany N.Y. 1982), 169-77 and 264-82, esp. n. 1, 264-6; Robert Todd, introduction to translation of Themistius *in DA* 3.4-8, in *Two Greek Aristotelian Commentators on the Intellect*, trans. Frederick M. Schroeder and Robert B. Todd (Toronto 1990).

7 H. Vitelli, *CAG* 17, p. 992, s.v. Themistius.

authorship, has been placed by some in the same group of commentaries as being earlier than the fifth century.[8]

By far the largest group of extant commentaries is that of the Neoplatonists up to the sixth century A.D. Nearly all the major Neoplatonists, apart from Plotinus (the founder of Neoplatonism), wrote commentaries on Aristotle, although those of Iamblichus (*c.* 250–*c.* 325) survive only in fragments, and those of three Athenians, Plutarchus (died 432), his pupil Proclus (410–485) and the Athenian Damascius (*c.* 462–after 538), are lost.[9] As a result of these losses, most of the extant Neoplatonist commentaries come from the late fifth and the sixth centuries and a good proportion from Alexandria. There are commentaries by Plotinus' disciple and editor Porphyry (232–309), by Iamblichus' pupil Dexippus (*c.* 330), by Proclus' teacher Syrianus (died *c.* 437), by Proclus' pupil Ammonius (435/445–517/526), by Ammonius' three pupils Philoponus (*c.* 490 to 570s), Simplicius (wrote after 532, probably after 538) and Asclepius (sixth century), by Ammonius' next but one successor Olympiodorus (495/505–after 565), by Elias (*fl.* 541?), by David (second half of the sixth century, or beginning of the seventh) and by Stephanus (took the chair in Constantinople *c.* 610). Further, a commentary on the *Nicomachean Ethics* has been ascribed to Heliodorus of Prusa, an unknown pre-fourteenth-century figure, and there is a commentary by Simplicius' colleague Priscian of Lydia on Aristotle's successor Theophrastus. Of these commentators some of the last were Christians (Philoponus, Elias, David and Stephanus), but they were Christians writing in the Neoplatonist tradition, as was also Boethius who produced a number of commentaries in Latin before his death in 525 or 526.

The third group comes from a much later period in Byzantium. The Berlin edition includes only three out of more than a dozen commentators described in Hunger's *Byzantinisches Handbuch*.[10] The two most important are Eustratius (1050/1060–*c.*1120), and Michael of Ephesus. It has been suggested that these two belong to a circle organised by the princess

8 The similarities to Syrianus (died *c.* 437) have suggested to some that it predates Syrianus (most recently Leonardo Tarán, review of Paul Moraux, *Der Aristotelismus*, vol.1 in *Gnomon* 46 (1981), 721-50 at 750), to others that it draws on him (most recently P. Thillet, in the Budé edition of Alexander *de Fato*, p. lvii). Praechter ascribed it to Michael of Ephesus (eleventh or twelfth century), in his review of *CAG* 22.2, in *Göttingische Gelehrte Anzeiger* 168 (1906), 861-907.

9 The Iamblichus fragments are collected in Greek by Bent Dalsgaard Larsen, *Jamblique de Chalcis, Exégète et Philosophe* (Aarhus 1972), vol. 2. Most are taken from Simplicius, and will accordingly be translated in due course. The evidence on Damascius' commentaries is given in L.G. Westerink, *The Greek Commentaries on Plato's Phaedo*, vol. 2, Damascius (Amsterdam 1977), 11-12; on Proclus' in L.G. Westerink, *Anonymous Prolegomena to Platonic Philosophy* (Amsterdam 1962), xii, n. 22; on Plutarchus' in H.M. Blumenthal, 'Neoplatonic elements in the de Anima commentaries', *Phronesis* 21 (1976), 75.

10 Herbert Hunger, *Die hochsprachliche profane Literatur der Byzantiner*, vol. 1 (= *Byzantinisches Handbuch*, part 5, vol. 1) (Munich 1978), 25-41. See also B.N. Tatakis, *La Philosophie Byzantine* (Paris 1949).

Anna Comnena in the twelfth century, and accordingly the completion of Michael's commentaries has been redated from 1040 to 1138.[11] His commentaries include areas where gaps had been left. Not all of these gap-fillers are extant, but we have commentaries on the neglected biological works, on the *Sophistici Elenchi*, and a small fragment of one on the *Politics*. The lost *Rhetoric* commentary had a few antecedents, but the *Rhetoric* too had been comparatively neglected. Another product of this period may have been the composite commentary on the *Nicomachean Ethics* (*CAG* 20) by various hands, including Eustratius and Michael, along with some earlier commentators, and an improvisation for Book 7. Whereas Michael follows Alexander and the conventional Aristotelian tradition, Eustratius' commentary introduces Platonist, Christian and anti-Islamic elements.[12]

The composite commentary was to be translated into Latin in the next century by Robert Grosseteste in England. But Latin translations of various logical commentaries were made from the Greek still earlier by James of Venice (*fl. c.* 1130), a contemporary of Michael of Ephesus, who may have known him in Constantinople. And later in that century other commentaries and works by commentators were being translated from Arabic versions by Gerard of Cremona (died 1187).[13] So the twelfth century resumed the transmission which had been interrupted at Boethius' death in the sixth century.

The Neoplatonist commentaries of the main group were initiated by Porphyry. His master Plotinus had discussed Aristotle, but in a very independent way, devoting three whole treatises (*Enneads* 6.1-3) to attacking Aristotle's classification of the things in the universe into categories. These categories took no account of Plato's world of Ideas, were inferior to Plato's classifications in the *Sophist* and could anyhow be collapsed, some

11 R. Browning, 'An unpublished funeral oration on Anna Comnena', *Proceedings of the Cambridge Philological Society* n.s. 8 (1962), 1-12, esp. 6-7.

12 R. Browning, op. cit. H.D.P. Mercken, *The Greek Commentaries of the Nicomachean Ethics of Aristotle in the Latin Translation of Grosseteste, Corpus Latinum Commentariorum in Aristotelem Graecorum* VI 1 (Leiden 1973), ch. 1, 'The compilation of Greek commentaries on Aristotle's Nicomachean Ethics'. Sten Ebbesen, 'Anonymi Aurelianensis I Commentarium in *Sophisticos Elenchos*', *Cahiers de l'Institut Moyen Age Grecque et Latin* 34 (1979), 'Boethius, Jacobus Veneticus, Michael Ephesius and "Alexander" ', pp. v-xiii; id., *Commentators and Commentaries on Aristotle's Sophistici Elenchi*, 3 parts, *Corpus Latinum Commentariorum in Aristotelem Graecorum*, vol. 7 (Leiden 1981); A. Preus, *Aristotle and Michael of Ephesus on the Movement and Progression of Animals* (Hildesheim 1981), introduction.

13 For Grosseteste, see Mercken as in n. 12. For James of Venice, see Ebbesen as in n. 12, and L. Minio-Paluello, 'Jacobus Veneticus Grecus', *Traditio* 8 (1952), 265-304; id., 'Giacomo Veneto e l'Aristotelismo Latino', in Pertusi (ed.), *Venezia e l'Oriente fra tardo Medioevo e Rinascimento* (Florence 1966), 53-74, both reprinted in his *Opuscula* (1972). For Gerard of Cremona, see M. Steinschneider, *Die europäischen Übersetzungen aus dem arabischen bis Mitte des 17. Jahrhunderts* (repr. Graz 1956); E. Gilson, *History of Christian Philosophy in the Middle Ages* (London 1955), 235-6 and more generally 181-246. For the translators in general, see Bernard G. Dod, 'Aristoteles Latinus', in N. Kretzmann, A. Kenny, J. Pinborg (eds), *The Cambridge History of Latin Medieval Philosophy* (Cambridge 1982).

of them into others. Porphyry replied that Aristotle's categories could apply perfectly well to the world of intelligibles and he took them as in general defensible.[14] He wrote two commentaries on the *Categories*, one lost, and an introduction to it, the *Isagôgê*, as well as commentaries, now lost, on a number of other Aristotelian works. This proved decisive in making Aristotle a necessary subject for Neoplatonist lectures and commentary. Proclus, who was an exceptionally quick student, is said to have taken two years over his Aristotle studies, which were called the Lesser Mysteries, and which preceded the Greater Mysteries of Plato.[15] By the time of Ammonius, the commentaries reflect a teaching curriculum which begins with Porphyry's *Isagôgê* and Aristotle's *Categories*, and is explicitly said to have as its final goal a (mystical) ascent to the supreme Neoplatonist deity, the One.[16] The curriculum would have progressed from Aristotle to Plato, and would have culminated in Plato's *Timaeus* and *Parmenides*. The latter was read as being about the One, and both works were established in this place in the curriculum at least by the time of Iamblichus, if not earlier.[17]

Before Porphyry, it had been undecided how far a Platonist should accept Aristotle's scheme of categories. But now the proposition began to gain force that there was a harmony between Plato and Aristotle on most things.[18] Not for the only time in the history of philosophy, a perfectly crazy proposition proved philosophically fruitful. The views of Plato and of Aristotle had both to be transmuted into a new Neoplatonist philosophy in order to exhibit the supposed harmony. Iamblichus denied that Aristotle contradicted Plato on the theory of Ideas.[19] This was too much for Syrianus and his pupil Proclus. While accepting harmony in many areas,[20] they could see that there was disagreement on this issue and also on the issue of whether God was causally responsible for the existence of the ordered

14 See P. Hadot, 'L'harmonie des philosophies de Plotin et d'Aristote selon Porphyre dans le commentaire de Dexippe sur les Catégories', in *Plotino e il neoplatonismo in Oriente e in Occidente* (Rome 1974), 31-47; A.C. Lloyd, 'Neoplatonic logic and Aristotelian logic', *Phronesis* 1 (1955-6), 58-79 and 146-60.

15 Marinus, *Life of Proclus* ch. 13, 157,41 (Boissonade).

16 The introductions to the *Isagôgê* by Ammonius, Elias and David, and to the *Categories* by Ammonius, Simplicius, Philoponus, Olympiodorus and Elias are discussed by L.G. Westerink, *Anonymous Prolegomena* and I. Hadot, 'Les Introductions', see n. 2 above.

17 Proclus in *Alcibiadem 1* p. 11 (Creuzer); Westerink, *Anonymous Prolegomena*, ch. 26, 12f. For the Neoplatonist curriculum see Westerink, Festugière, P. Hadot and I. Hadot in n. 2.

18 See e.g. P. Hadot (1974), as in n. 14 above; H.J. Blumenthal, 'Neoplatonic elements in the de Anima commentaries', *Phronesis* 21 (1976), 64-87; H.A. Davidson, 'The principle that a finite body can contain only finite power', in S. Stein and R. Loewe (eds), *Studies in Jewish Religious and Intellectual History presented to A. Altmann* (Alabama 1979), 75-92; Carlos Steel, 'Proclus et Aristotle', Proceedings of the Congrès Proclus held in Paris 1985, J. Pépin and H.D. Saffrey (eds), *Proclus, lecteur et interprète des anciens* (Paris 1987), 213-25; Koenraad Verrycken, *God en Wereld in de Wijsbegeerte van Ioannes Philoponus*, Ph.D. Diss. (Louvain 1985).

19 Iamblichus ap. Elian *in Cat.* 123,1-3.

20 Syrianus *in Metaph.* 80,4-7; Proclus *in Tim.* 1.6,21-7,16.

physical cosmos, which Aristotle denied. But even on these issues, Proclus' pupil Ammonius was to claim harmony, and, though the debate was not clear cut,[21] his claim was on the whole to prevail. Aristotle, he maintained, accepted Plato's Ideas,[22] at least in the form of principles (*logoi*) in the divine intellect, and these principles were in turn causally responsible for the beginningless existence of the physical universe. Ammonius wrote a whole book to show that Aristotle's God was thus an efficent cause, and though the book is lost, some of its principal arguments are preserved by Simplicius.[23] This tradition helped to make it possible for Aquinas to claim Aristotle's God as a Creator, albeit not in the sense of giving the universe a beginning, but in the sense of being causally responsible for its beginningless existence.[24] Thus what started as a desire to harmonise Aristotle with Plato finished by making Aristotle safe for Christianity. In Simplicius, who goes further than anyone,[25] it is a formally stated duty of the commentator to display the harmony of Plato and Aristotle in most things.[26] Philoponus, who with his independent mind had thought better of his earlier belief in harmony, is castigated by Simplicius for neglecting this duty.[27]

The idea of harmony was extended beyond Plato and Aristotle to Plato and the Presocratics. Plato's pupils Speusippus and Xenocrates saw Plato as being in the Pythagorean tradition.[28] From the third to first centuries B.C., pseudo-Pythagorean writings present Platonic and Aristotelian doctrines as if they were the ideas of Pythagoras and his pupils,[29] and these forgeries were later taken by the Neoplatonists as genuine. Plotinus saw the Presocratics as precursors of his own views,[30] but Iamblichus went far beyond him by writing ten volumes on Pythagorean philosophy.[31] Thereafter Proclus sought to unify the whole of

21 Asclepius sometimes accepts Syranius' interpretation (*in Metaph.* 433,9-436,6); which is, however, qualified, since Syrianus thinks Aristotle is realy committed willy-nilly to much of Plato's view (*in Metaph.* 117,25-118,11; ap. Asclepium *in Metaph.* 433,16; 450,22); Philoponus repents of his early claim that Plato is not the target of Aristotle's attack, and accepts that Plato is rightly attacked for treating ideas as independent entities outside the divine Intellect (*in DA* 37,18-31; *in Phys.* 225,4-226,11; *contra Procl.* 26,24-32,13; *in An. Post.* 242,14-243,25).

22 Asclepius *in Metaph.* from the voice of (i.e. from the lectures of) Ammonius 69,17-21; 71,28; cf. Zacharias *Ammonius, Patrologia Graeca* vol. 85 col. 952 (Colonna).

23 Simplicius *in Phys.* 1361,11-1363,12. See H.A. Davidson; Carlos Steel; Koenraad Verrycken in n. 18 above.

24 See Richard Sorabji, *Matter, Space and Motion* (London and Ithaca N.Y. 1988), ch. 15.

25 See e.g. H.J. Blumenthal in n. 18 above.

26 Simplicius *in Cat.* 7,23-32.

27 Simplicius *in Cael.* 84,11-14; 159,2-9. On Philoponus' *volte face* see n. 21 above.

28 See e.g. Walter Burkert, *Weisheit und Wissenschaft* (Nürnberg 1962), translated as *Lore and Science in Ancient Pythagoreanism* (Cambridge Mass. 1972), 83-96.

29 See Holge Thesleff, *An Introduction to the Pythagorean Writings of the Hellenistic Period* (Åbo 1961); Thomas Alexander Szlezák, *Pseudo-Archytas über die Kategorien*, Peripatoi vol. 4 (Berlin and New York 1972).

30 Plotinus e.g. 4.8.1; 5.1.8 (10-27); 5.1.9.

31 See Dominic O'Meara, *Pythagoras Revived: Mathematics and Philosophy in Late Antiquity* (Oxford 1989).

Greek philosophy by presenting it as a continuous clarification of divine revelation[32] and Simplicius argued for the same general unity in order to rebut Christian charges of contradictions in pagan philosophy.[33]

Later Neoplatonist commentaries tend to reflect their origin in a teaching curriculum:[34] from the time of Philoponus, the discussion is often divided up into lectures, which are subdivided into studies of doctrine and of text. A general account of Aristotle's philosophy is prefixed to the *Categories* commentaries and divided, according to a formula of Proclus,[35] into ten questions. It is here that commentators explain the eventual purpose of studying Aristotle (ascent to the One) and state (if they do) the requirement of displaying the harmony of Plato and Aristotle. After the ten-point introduction to Aristotle, the *Categories* is given a six-point introduction, whose antecedents go back earlier than Neoplatonism, and which requires the commentator to find a unitary theme or scope (*skopos*) for the treatise. The arrangements for late commentaries on Plato are similar. Since the Plato commentaries form part of a single curriculum they should be studied alongside those on Aristotle. Here the situation is easier, not only because the extant corpus is very much smaller, but also because it has been comparatively well served by French and English translators.[36]

Given the theological motive of the curriculum and the pressure to harmonise Plato with Aristotle, it can be seen how these commentaries are a major source for Neoplatonist ideas. This in turn means that it is not safe to extract from them the fragments of the Presocratics, or of other authors, without making allowance for the Neoplatonist background against which the fragments were originally selected for discussion. For different reasons, analogous warnings apply to fragments preserved by the pre-Neoplatonist commentator Alexander.[37] It will be another advantage of the present translations that they will make it easier to check the distorting effect of a commentator's background.

Although the Neoplatonist commentators conflate the views of Aristotle with those of Neoplatonism, Philoponus alludes to a certain convention

32 See Christian Guérard, 'Parménide d'Elée selon les Néoplatoniciens', forthcoming.

33 Simplicius *in Phys.* 28,32-29,5; 640,12-18. Such thinkers as Epicurus and the Sceptics, however, were not subject to harmonisation.

34 See the literature in n. 2 above.

35 ap. Elian *in Cat.* 107,24-6.

36 English: Calcidius *in Tim.* (parts by van Winden; den Boeft); Iamblichus fragments (Dillon); Proclus *in Tim.* (Thomas Taylor); Proclus *in Parm.* (Dillon); Proclus *in Parm.*, end of 7th book, from the Latin (Klibansky, Labowsky, Anscombe); Proclus *in Alcib. 1* (O'Neill); Olympiodorus and Damascius *in Phaedonem* (Westerink); Damascius *in Philebum* (Westerink); *Anonymous Prolegomena to Platonic Philosophy* (Westerink). See also extracts in Thomas Taylor, *The Works of Plato*, 5 vols. (1804). French: Proclus *in Tim.* and *in Rempublicam* (Festugière); *in Parm.* (Chaignet); Anon. *in Parm* (P. Hadot); Damascius *in Parm.* (Chaignet).

37 For Alexander's treatment of the Stoics, see Robert B. Todd, *Alexander of Aphrodisias on Stoic Physics* (Leiden 1976), 24-9.

when he quotes Plutarchus expressing disapproval of Alexander for expounding his own philosophical doctrines in a commentary on Aristotle.[38] But this does not stop Philoponus from later inserting into his own commentaries on the *Physics* and *Meteorology* his arguments in favour of the Christian view of Creation. Of course, the commentators also wrote independent works of their own, in which their views are expressed independently of the exegesis of Aristotle. Some of these independent works will be included in the present series of translations.

The distorting Neoplatonist context does not prevent the commentaries from being incomparable guides to Aristotle. The introductions to Aristotle's philosophy insist that commentators must have a minutely detailed knowledge of the entire Aristotelian corpus, and this they certainly have. Commentators are also enjoined neither to accept nor reject what Aristotle says too readily, but to consider it in depth and without partiality. The commentaries draw one's attention to hundreds of phrases, sentences and ideas in Aristotle, which one could easily have passed over, however often one read him. The scholar who makes the right allowance for the distorting context will learn far more about Aristotle than he would be likely to on his own.

The relations of Neoplatonist commentators to the Christians were subtle. Porphyry wrote a treatise explicitly against the Christians in 15 books, but an order to burn it was issued in 448, and later Neoplatonists were more circumspect. Among the last commentators in the main group, we have noted several Christians. Of these the most important were Boethius and Philoponus. It was Boethius' programme to transmit Greek learning to Latin-speakers. By the time of his premature death by execution, he had provided Latin translations of Aristotle's logical works, together with commentaries in Latin but in the Neoplatonist style on Porphyry's *Isagôgê* and on Aristotle's *Categories* and *de Interpretatione*, and interpretations of the *Prior* and *Posterior Analytics*, *Topics* and *Sophistici Elenchi*. The interruption of his work meant that knowledge of Aristotle among Latin-speakers was confined for many centuries to the logical works. Philoponus is important both for his proofs of the Creation and for his progressive replacement of Aristotelian science with rival theories, which were taken up at first by the Arabs and came fully into their own in the West only in the sixteenth century.

Recent work has rejected the idea that in Alexandria the Neoplatonists compromised with Christian monotheism by collapsing the distinction between their two highest deities, the One and the Intellect. Simplicius (who left Alexandria for Athens) and the Alexandrians Ammonius and Asclepius appear to have acknowledged their beliefs quite openly, as later

38 Philoponus *in DA* 21,20-3.

did the Alexandrian Olympiodorus, despite the presence of Christian students in their classes.[39]

The teaching of Simplicius in Athens and that of the whole pagan Neoplatonist school there was stopped by the Christian Emperor Justinian in 529. This was the very year in which the Christian Philoponus in Alexandria issued his proofs of Creation against the earlier Athenian Neoplatonist Proclus. Archaeological evidence has been offered that, after their temporary stay in Ctesiphon (in present-day Iraq), the Athenian Neoplatonists did not return to their house in Athens, and further evidence has been offered that Simplicius went to Harrān (Carrhae), in present-day Turkey near the Iraq border.[40] Wherever he went, his commentaries are a treasurehouse of information about the preceding thousand years of Greek philosophy, information which he painstakingly recorded after the closure in Athens, and which would otherwise have been lost. He had every reason to feel bitter about Christianity, and in fact he sees it and Philoponus, its representative, as irreverent. They deny the divinity of the heavens and prefer the physical relics of dead martyrs.[41] His own commentaries by contrast culminate in devout prayers.

Two collections of articles by various hands have been published, to make the work of the commentators better known. The first is devoted to Philoponus;[42] the second is about the commentators in general, and goes into greater detail on some of the issues briefly mentioned here.[43]

39 For Simplicius, see I. Hadot, *Le Problème du Néoplatonisme Alexandrin: Hiéroclès et Simplicius* (Paris 1978); for Ammonius and Asclepius, Koenraad Verrycken, *God en wereld in de Wijsbegeerte van Ioannes Philoponus*, Ph.D. Diss. (Louvain 1985); for Olympiodorus, L.G. Westerink, *Anonymous Prolegomena to Platonic Philosophy* (Amsterdam 1962).

40 Alison Frantz, 'Pagan philosophers in Christian Athens', *Proceedings of the American Philosophical Society* 119 (1975), 29-38; M. Tardieu, 'Témoins orientaux du *Premier Alcibiade* à Harrān et à Nag 'Hammādi', *Journal Asiatique* 274 (1986); id., 'Les calendriers en usage à Harrān d'après les sources arabes et le commentaire de Simplicius à la *Physique* d'Aristote', in I. Hadot (ed.), *Simplicius, sa vie, son oeuvre, sa survie* (Berlin 1987), 40-57; id., *Coutumes nautiques mésopotamiennes chez Simplicius*, in preparation. The opposing view that Simplicius returned to Athens is most fully argued by Alan Cameron, 'The last day of the Academy at Athens', *Proceedings of the Cambridge Philological Society* 195, n.s. 15 (1969), 7-29.

41 Simplicius *in Cael.* 26,4-7; 70,16-18; 90,1-18; 370,29-371,4. See on his whole attitude Philippe Hoffmann, 'Simplicius' polemics', in Richard Sorabji (ed.), *Philoponus and the Rejection of Aristotelian Science* (London and Ithaca, N.Y. 1987).

42 Richard Sorabji (ed.), *Philoponus and the Rejection of Aristotelian Science* (London and Ithaca, N.Y. 1987).

43 Richard Sorabji (ed.), *Aristotle Transformed: the ancient commentators and their influence* (London and Ithaca, N.Y. 1990). The lists of texts and previous translations of the commentaries included in Wildberg, *Philoponus Against Aristotle on the Eternity of the World* (pp. 12ff.) are not included here. The list of translations should be augmented by: F.L.S. Bridgman, Heliodorus (?) in *Ethica Nicomachea*, London 1807.

I am grateful for comments to Henry Blumenthal, Victor Caston, I. Hadot, Paul Mercken, Alain Segonds, Robert Sharples, Robert Todd, L.G. Westerink and Christian Wildberg.

English-Greek Glossary

The Glossary lists significant English terms occurring in the translation and gives, in transliterated form, their Greek equivalents, thus enabling the reader to locate these latter in the Greek-English Index. (a)= adjective, (n)= noun, (v)= verb.

absolutely: *haplôs*
accident: *sumbebêkos*
account (n): *logos*
act (v): *prattein*
 active: *poiêtikos*
act (n), actuality, actuation: *energeia*
 in actuality: *energeiâi, entelekheiâi*
action: *praxis*
activity: *energeia*
ad infinitum: *eis apeiron*
addition: *prosthêkê, prosthesis*
affected, be, affection: *paskhein, pathos*
affirmation, affirmative statement: *kataphasis*
air: *aêr*
alteration: *alloiôsis*
analogous, analogy: *analogos, analogia*
angle: *gônia*
animal: *zôion*
animate (a): *empsukhos*
appearance: *eidos, phantasia*
appropriate (a): *oikeios*
argument: *logos, sullogismos*
arrangement: *taxis*
art, artefact, artisan: *tekhnê, tekhnêton, tekhnitês*
atoms: *hai atomoi*
attribute (n): *to huparkhon*
awareness, mutual: *sunaisthêsis*
axiom: *axiôma*

bad: *kakos*
be: *einai, huparkhein*
beauty: *to kalon*
become, becoming (n): *gignesthai, genesis*
beginning (n): *arkhê*
being (n): *to einai, to on*
belong to: *huparkhein* + Dat.
bend, bending (n): *kamptein, kampsis*
bird: *orneon*
black: *melas*
blind, blindness: *tuphlos, tuphlotês*
body: *sôma*
boundary: *horos*
breadth: *platos*
bronze: *khalkos*

calculation: *dialogismos*
capable, capacity: *dunatos, dunamis*
category: *katêgoria*
cause: *aitia, aition*
 contributing cause: *sunaition*
chance: *tukhê*
change (v): *metaballein*; (n): *metabolê*
choice: *proairesis*
circle: *kuklos*
class (n): *eidos, genos*
cognitive power: *to nooun*
cold (a): *psukhros*; (n): *psukhrotês*
colour: *khrôma*
combined, combination: *sunthetos, sunthesis*
come to be, into being: *gignesthai*
 coming-to-be (n): *genesis*
commensurable: *summetros*
common, community: *koinos, koinônia*
complete, completion: *teleios, teleiotês*
composite (n): *sunamphoteron, to suntheton*
compulsion, compulsory: *bia, biaios*
conclusion (of syllogism): *sumperasma*
consonant, voiced c.: *aphônon; psophos*
constituent: *to enuparkhon*
continuous: *sunekhês*
contradict: *antilegein*
contrary: *enantios*
contrast (n): *antithesis*

death: *teleutê, thanatos*
deep, depth: *bathus, bathos*
defect (n): *elleipsis*
define: *horizesthai*
 definite: *hôrismenos*

definition: *horismos, horos, logos*
demonstration: *apodeixis*
denial: *apophasis*
depraved: *mokhthêros*
desire (n): *ephesis*
destroy: *anairein, phtheirein*
be destroyed: *phtheiresthai*
destruction: *phthora*
diagonal (n): *diametros*
dialectic: *hê dialektikê*
differ, different: *diapherein, diaphoros*
different in kind, specifically: *anomoeidês*
difference, differentia: *diaphora*
discrete: *diôrismenos*
discriminate: *krinein*
dissimilar: *anomoios*
dissolution: *dialusis*
distinguish, distinction: *diairein, diairesis*
divide, divisible, division: *diairein, diairetos, diairesis*
divine: *daimonios, theios*
do: *prattein*
things to be done: *ta prakta*
do away with: *anairein*
doctor: *iatros*
double: *diplasios*
dry: *xêrox*

eagerness: *spoudê*
earth: *gê*
education: *paideia*
effect: *to aitiaton,*
element: *stoikheion*
embryo: *embruon*
end (n): *telos*
enmattered: *enulos*
equal, equality: *isos, isotês*
equivocal: *homônumos*
essence: *ousia, to ti esti, to ti ên einai*
essential: *ousiôdês*
eternal: *aïdios*
ethics, science of: *hê êthikê pragmateia*
even (math.): *artios*
evil (a): *kakos*; (n) *to kakon*
exceed, excess: *huperekhein, huperokhê*
excellence: *aretê*
exist: *einai, huparkhein*
exist in, before: *enuparkhein, prouparkhein*
existence: *huparxis*
actual existence: *hupostasis*
expressed in various ways: *pollakhôs legomenon*
eye: *ophthalmos*

false, falsity: *pseudês, pseudos*
father: *patêr*
female (n): *gunê, to thêlu*
few: *oligos*
figure: *skhêma*
final: *eskhatos, teleutaios*
fire: *pur*
foot, having feet: *pous, pezos*
force (n): *bia*
form: *eidos, morphê*
formal: *eidikos*
formula: *logos*
fractionally greater: *epimorios*
full: *plêrês*

generate, generation: *gennan, genesis*
genus: *genos*
goal: *skopos*
gods, the: *hoi theoi*
good (a): *agathos*; (n) *to agathon, eu*
great: *megas*
grow: *phuesthai*

habit: *ethos, hexis*
half: *hêmisus*
half again as much: *hêmiolios*
happiness: *eudaimonia*
have, having (n): *ekhein, hexis*
health, healthy: *hugieia, hugiês*
hearing, sense of: *akoê*
heart: *kardia*
heavy, heaviness: *barus, barutês*
hot, heat (n): *thermos, thermotês*
hypothesis: *hupothesis*

Ideas, the (Platonic): *hai ideai*
identical, identity: *t'autos, t'autotês*
ignorance: *to agnoein*
image: *eikôn, phantasma*
dream-image: *enupnion*
imagination: *phantasia*
immediate: *amesos*
immobile: *akinêtos*
immutable: *akinêtos, ametablêtos*
impassivity: *apatheia*
impossible: *adunatos*
impulse: *hormê*
in itself: *kath' hauto*
in the primary, proper, sense: *kuriôs*
inanimate: *apsukhos*
incapable, incapacity: *adunatos, adunamia*
incontinent: *akratês*
increase (v) in size: *auxesthai*
indefinite: *aoristos*
indivisible: *adiairetos, atomos*
individuals: *atoma, ta kath' hekasta*
induction: *epagôgê*

infinite: *apeiros*
intelligible: *noêtos*
intermediates: *ta metaxu*
internal inclination: *rhopê*
interval: *diastêma*
intuition: *nous*
investigation: *theôria*
involuntary: *akousios*
irrational: *alogos*

judgement: *hupolêpsis*
just, justice: *dikaios, dikaiosunê*

kind (n): *eidos, genos*
know: *eidenai, epistasthai, gignôskein, gnôrizein*
  knowable: *epistêtos*
  knowledge: *epistêmê, gnôsis*

learn, learning (n): *manthanein, mathêsis*
leg: *skelos*
length: *mêkos*
letter (of alphabet): *gramma*
life: *to zên; zôê*
  living thing: *zôion*
light (a), lightness: *kouphos, kouphotês*
like (a), likeness: *homoios, homoiotês*
limit (n): *horos, peras*
  limited: *hôrismenos, peperasmenos*
line: *grammê, mêkos*
local motion: *phora*
long: *makros*

magnitude: *megethos*
make, making (n): *poiein, poiêsis*
man (male): *anêr*; (human being): *anthrôpos*
many times greater, less: *pollaplasios, pollostêmorios*
mathematical: *mathêmatikos*
matter, material: *hulê, hulikos*
measure (v): *metrein*; (n): *metron*
medicine: *pharmakon*
  science of: *hê iatrikê*
model: *paradeigma*
mole: *aspalax*
morbid: *nosôdês*
mother: *mêtêr*
motion, movement: *kinêsis*

names, with different, several: *heterônumos, poluônumos*
narrow: *stenos*
nature, natural: *phusis, phusikos*
necessity, necessary: *anankê, anankaiaos*
negation: *apophasis*
not-being: *to mê einai, to mê on*

notion: *epinoia*
noun: *onoma*
nourish, nourishment: *trephein, trophê*
  nutritive: *threptikos*
number, numerical: *arithmos, kat' arithmon*

octave: *dia pasôn* [*harmonia*]
odd (math): *perittos*
one (a): *heis*; (n) *to hen*
opinion: *doxa*
  right o.: *d. orthê*
  commonly held o.: *to endoxon*
opposed, be: *antikeisthai*
  opposed, opposite: *antikeimenos*
order: *taxis*
other: *allos, heteros*

part: *meros, morion*
participate, participation: *metekhein, metalêpsis*
particulars: *ta hath' hekasta*
passive: *pathêtikos*
peculiar: *oikeios*
per accidens: *kata sumbebêkos*
per se: *kath' hauto*
perceive, perception, perciptible: *aisthanesthai, aisthêsis, aisthêtos*
perfection: *teleiotês*
perish, perishing (n), perishable: *phtheiresthai, phthora, phthartos*
philosopher, philosophy: *philosophos, philosophia*
place (n): *topos*
plane (n), plane figure: *epipedon*
plant (n): *phuton*
plurality: *plêthos*
point (math.): *stigmê*
position: *thesis*
possession: *hexis*
posterior: *husteros*
potentially, in potency: *dunamei*
power: *dunamis*
predicate (v): *katêgorein*; (n): *to katêgoroumenon*
  predication: *katêgoria*
premise: *protasis*
principle: *arkhê*
prior: *proteros*
privation, privative: *sterêsis, sterêtikos*
produce, production, productive: *poiein, poiêsis, poiêtikos*
profligate: *akolastos*
proper: *idios, oikeios*
  property: *to idion*
proportion: *analogia, logos*
proposition: *protasis*

prove: *apodeiknunai, deiknunai*
proximate: *prosekhês*

quality: *to poion; poiotês*
quantity: *to poson; posotês*

ratio: *logos*
rational: *logikos*
reality: *ousia*
receive, recipient: *dekhesthai, to dektikon*
reciprocals: *ta antistrephonta*
refer, reference: *anapherein, anaphora*
relatives: *ta pros ti*
  relation: *skhesis*
rest, be at: *êremein*; rest (n); *êremia*
rhetoric: *hê rhêtorikê*
ruler: *ho arkhôn*

same, sameness: *t'autos, t'autotês*
science, scientific knowledge: *epistêmê*
sculptor: *andriantopoios*
seed: *sperma*
sense perception, sensitive: *aisthêsis, aisthêtikos*
  sense organ: *aisthêtêrion*
sentence (n): *logos*
separate (v), separated, separation: *khôrizein, kekhôrismenos, khôrismos*
shallow: *tapeinos*
shape (n): *skhêma*
shin: *knêmê*
short: *brakhus*
side (math.): *pleura*
similar: *homoios*
simple: *haplous*
size: *megethos*
solid (n): *sôma, to stereon*
soul: *psukhê*
speech (discourse): *logos*; (spoken word): *phônê*
species: *eidos*
  of the same sp.: *homoeidês*
square (a): *tetragônos*
star: *astron*; fixed st.: *a. aplanes*
starting-point: *arkhê*
state: *hexis*
statue: *andrias*
straight, straightness: *euthus, euthutês*
subject (n), substrate: *to hupokeimenon*
subordinate (a): *hupallêlos*
substance, substantial: *ousia, ousiôdês*
suffering (n): *pathos*
sun: *hêlios*
supervene: *epigignesthai*
surface: *epiphaneia*
sweet: *glukus*
syllable: *sullabê*
syllogism: *sullogismos*

term: *onoma*; (of syllogism): *horos*
thing: *pragma*
  this particular thing: *tode ti*
thigh: *mêros*
think: *noein*
  thought: *dianoia, epinoia, noêma, noêsis*
this something: *tode ti*
time: *khronos*
transfer, transference: *metapherein, metaphora*
treatise: *pragmateia*
triangle: *to trigônon*
true, truth: *alethês, alêtheia*
  assert truly: *alêtheuein*

ultimate: *eskhatos*
unaffected: *apathês*
underlie, underlying: *hupokeisthai, hupokeimenos*
union: *henôsis*
unit: *monas*
unity: *henotês*
universal, the: *to katholou*
universe: *to pan*
univocally: *sunônumôs*

vice: *kakia*
virtue: *aretê*
void, the: *to kenon*
voluntary: *hekôn*
vortex: *dinê*
vowel: *phthongos*

water: *hudôr*
weight: *baros*
well-being: *to eu*
white: *leukos*
whole (a): *holos*; (n): *to holon*
wide: *platus*
without qualification: *haplôs*
world: *kosmos*

Greek-English Index

This is the principal index. It records all significant occurrences of important Greek terms found in Alexander's commentary on Book 5, and the meanings assigned them in the translation. Cognate terms are grouped together, so that the index does not always follow strict alphabetical order. The textual citations given here are distributed according to philosophical topics in the Subject Index. Page and line references are to the Greek text.

Subject Index

This Index lists important topics dealt with in Book 5, a number of which constitute distinct chapters in this book. The textual citations duplicate those given in the Greek-English Index, but are distributed according to the multiple contexts in which a term occurs. Included here are the names of philosophers whom Alexander mentions. Page and line references are to the Greek text.

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